Capital Cost Estimate CAHSRA Program EIR/EIS Bay Area - Merced San Francisco To San Jose Segment

	COST ELEMENTS	UNIT	UNIT PRICE	o san sose segn	QUANT	TITIES	
				Segm		Segm	
				DT Tei		4th St T	
Aligr Trac	nment Cost			(6+200 Quantities	7+100) Item Cost	(6+200 Quantities	7+100) Item Cost
	Double Track Section - Total	km		1.800		0.900	item cost
2	Double Track Section - At-Grade	km	\$846,282	0.000	\$0	0.000	\$0
3		km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$1,440,413
5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$1,440,413
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	1.800	\$1,800,517	0.000	\$0
7		km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000	\$0 \$0
9		km	\$1,692,564	0.000	\$0 \$0	0.000	
	nwork and Related Items						
	Site Preparation - Undeveloped Total Cut	Hectares	\$10,294	0.000	\$0	0.000	\$0 \$0
	Total Fill	m3 m3	\$33.00 \$26.00	0.0	\$0 \$0	0.0	\$0
6	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000	\$0
7	Security Fencing (Both Sides of R/W)	km	\$86,687	0.000	\$0	0.000	\$0
	Special Drainage Facilities ctures/Tunnels/Walls	5% OF E	Earthwork Cost		\$0		\$0
1	Standard Structure	km	\$11,702,749	0	\$0	0	\$0
	High Structure	km	\$14,043,299	0	\$0	0	\$0
	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0	\$0 \$0	0	\$0 \$0
4	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	\$0
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0	\$0	0	\$0
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0	\$0	0	\$0
7	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0	\$0 \$0	0	\$0 \$0
	Double Track Mined (Soft Soil)	km	\$82,012,758	0	\$0	0	\$0
10	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0	0	\$0
	Crossovers Cut & Cover Double Track Tunnel	ea	\$80,782,844	0	\$0 \$0	0	\$0 \$36,905,741
	Trench Short	km km	\$41,006,379 \$42,322,835	0	\$0 \$0	0.9	\$36,905,741 \$0
14	Trench Long	km	\$33,464,567	0	\$0	0	\$0
	Mechanical & Electrical for Tunnels	km	\$1,645,723	1.8	\$2,962,301	0.9	\$1,481,150
	Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	0	\$0 \$0	0	\$0 \$0
18	Single Track Cut and Cover Subway	km	\$25,628,987	1.8	\$46,132,176	0	
Grad	e Separations						
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436 \$5,526,298	0	\$0 \$0	0	\$0 \$0
	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$931,886	0	\$0 \$0	0	\$0
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea ea	\$986,065	0	\$0 \$0	0	\$0 \$0
	Minor crossing closures	ea	\$151,702	0		0	
Build	ling Items		7.7.7.3=		7-1		
1	Intermediate Passenger Stations	ea	N/A	0	**	0	
	Seg 3 - SFO Intermediate Station Seg 3 - Palo Alto Intermediate Station	ea ea	\$10,000,000 \$10,000,000	0	\$0 \$0	0	\$0 \$0
	Seg 3 - Santa Clara Intermediate Station (Optional)	ea	\$10,000,000	0	\$0	0	\$0
2	Terminal Passenger Stations	ea	N/A	0		1	
2	Seg 2 - 4th Street Terminal Station Parking - Structure	space	\$437,517,500 \$14,244	0	\$0 \$0	1 1960	\$437,517,500 \$27,918,240
4	Parking - At Grade	space	\$2,042	0	\$0	0	\$27,918,240
Rail	and Utility Relocation	- прист	12/12/2				+-
	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	\$0
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	0.000	\$0 \$0	0.000	\$0 \$0
	Major Utility Relocations - Dense Urban	km	\$758,511	0.900	\$682,660	0.900	\$682,660
5	Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	\$0
	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0.000	\$0
	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0	0.000	\$0 \$0
Righ	t-of-Way	KIII	\$11,717	0.000	30	0.000	30
	Right-of-Way Required for Each Segment		12				
-	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0.000	\$0 \$0
+	Dense Suburban	Hectares	\$1,166,364	0.000	\$0 \$0	0.000	\$0
	Suburban	Hectares	\$408,227	0.000	\$0	0.000	\$0
_	Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	\$0
2	Right-of-Way Required for Passenger Station & Parking Dense Urban	Hectares	\$3,499,093	0.000	\$0	12.800	\$44,788,392
\pm	Urban	Hectares	\$2,332,729	0.000	\$0	0.000	\$44,788,392
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	\$0
+	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000	\$0 \$0	0.000	\$0 \$0
Envi	ronmental Mitigation	neciales	\$241,041	0.000	\$0	0.000	\$0
Env	vironmental Mitigation	3% (of Line Cost		\$1,678,506		\$15,243,959
	als and Communication Signaling (ATC)	lens	\$720,586	1.800	\$1,297,055	0.900	¢440 E03
	Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	1.800	\$1,297,055 \$1,072,752	0.900	\$648,527 \$536,376
3	Wayside Protection System	km	\$57,213	1.800	\$102,984	0.900	\$51,492
	trification Items	<u> </u>	***************************************		A T		****
	Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	1.800 1.800	\$663,156 \$1,236,590	0.900 0.900	\$331,578 \$618,295
	cle Costs	NIII	\$100U,773	1.600	φ1,Z30,340	0.900	\$010,293
		vehicles			\$0		\$0
	Fleet size estimate						
Supp	ort Facility Costs	0.2			601		*^
Supp 1	ort Facility Costs Facility cost breakdown	ea			\$0		\$0
Supp 1 Prog	port Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs		Cost and Procurement		\$0 \$14,695,318		
Supp 1 Prog Pro Cont	port Facility Costs Facility cost breakdown Facility cost breakdown Fam Implementation Costs Gram Implement	25.5% of Total	,		\$14,695,318		\$144,881,903
Supp 1 Prog Pro Cont	port Facility Costs Facility cost breakdown Facility cost breakdown Facility cost breakdown Facility costs Facility	25.5% of Total	Cost and Procurement		\$14,695,318 \$14,407,174		\$144,881,903 \$142,041,081 \$508 131 974
Prog Prog Pro Cont Con	port Facility Costs Facility cost breakdown Facility cost breakdown Fam Implementation Costs Gram Implement	25.5% of Total	,		\$14,695,318		\$144,881,903

Capital Cost Estimate CAHSRA Program EIR/EIS Bay Area - Merced San Francisco To San Jose Segment

				To San Jose Segme	
	COST ELEMENTS	UNIT	UNIT PRICE	QUANTI Segmen	
				Commor	
	ment Cost			(7+100 81	
rac	K Double Track Section - Total	km	1	Quantities 101.796	Item Cost
2	Double Track Section - At-Grade	km	\$846,282	94.299	\$79,803,5
3	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	0.000 4.113	\$6,582,6
5	Double Track Section - In Trench	km	\$1,600,459	3.384	\$5,415,9
Ι,	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	
7	Freight Double Track Freight Single Track	km km	\$846,282 \$423,141	0.000	
9	Four-track construction or reconstruction	km	\$1,692,564	0.000	
	Nwork and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	0.000	
	Total Cut	m3	\$33.00	782,679	\$25,828,4
	Total Fill	m3	\$26.00	2,761,397	\$71,796,3
	Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.000 69.676	\$6,040,0
8	Special Drainage Facilities		Earthwork Cost		\$5,183,2
	ctures/Tunnels/Walls Standard Structure	km	\$11,702,749		
2	High Structure	km	\$14,043,299		
	Long Span Structure Waterway Crossing - Primary	km	\$32,020,021		
4	Waterway Crossing - Frinary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000		
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		*
	Twin Single Track TBM (<6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	2.580	\$121,934,
8	Double Track Drill & Blast	km	\$71,355,733		
	Double Track Mined (Soft Soil)	km	\$82,012,758		
	Seismic Chamber (Drill & Blast/Mined) Crossovers	ea ea	\$80,782,844 \$80,782,844		
12	Cut & Cover Double Track Tunnel	km	\$41,006,379	1.367	\$56,055,
	Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	3.383	\$143,178,
	Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	3.947	\$6,495,
16	Retaining Walls	km	\$3,749,214	0	20,170,
	Containment Walls Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0	
rac	e Separations	KIII	\$20,028,98/	U	
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	11	\$78,000,
	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	0	\$931,
7	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	53	\$809,765,
8	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374 \$986,065	0	<u></u>
10	Street Bridging HSR Trench	ea ea	\$400,002	0	
21	Minor crossing closures	ea	\$151,702	1	\$151,
	Ing Items Intermediate Passenger Stations	ea	N/A	2	
Е	Seg 3 - SFO Intermediate Station	ea	\$10,000,000	1	\$10,000,0
+	Seg 3 - Palo Alto Intermediate Station Seg 3 - Santa Clara Intermediate Station (Optional)	ea ea	\$10,000,000 \$10,000,000	1 0	\$10,000,
2	Terminal Passenger Stations	ea	N/A	0	
2	Seg 2 - 4th Street Terminal Station Parking - Structure	space	\$437,517,500 \$14,244	2310	\$32,903,
4	Parking - At Grade	space	\$14,244	0	\$32,703,
ail	and Utility Relocation				
2	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0.000	
3	Single Track Removal	km	\$54,000	80.025	\$4,321,
	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	4.751 0.000	\$3,603,
6	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	
7	Major Utility Relocations - Suburban	km	\$232,971	0.000	
	Major Utility Relocations - Undeveloped t-of-Wav	km	\$11,919	0.000	
_	Right-of-Way Required for Each Segment				
L	Dense Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0.000	
H	Urban Dense Suburban	Hectares	\$2,332,729 \$1,166,364	0.000	
	Suburban	Hectares	\$408,227	0.000	
2	Undeveloped Pight of Way Paguired for Passanger Station & Parking	Hectares	\$291,591	0.000	
	Right-of-Way Required for Passenger Station & Parking Dense Urban	Hectares	\$3,499,093	1.900	\$6,648,
L	Urban	Hectares	\$2,332,729	0.000	
			\$1,166,364	0.000	
	Dense Suburban	Hectares Hectares	\$408 227	O OOOL	
	Dense Suburban Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000 0.000	
	Dense Suburban Suburban Undeveloped Onmental Mitigation	Hectares Hectares	\$291,591		\$51 7EO
En gn	Dense Suburban Suburban Undeveloped COMMENTAL MITIGATION Vironmental Mitigation Vironmental Mitgation als and Communication	Hectares Hectares			
Env gn 1	Dense Suburban Suburban Undeveloped Fonmental Mitigation vironmental Mitigation als and Communication [Signaling (ATC)	Hectares Hectares 3%	\$291,591 of Line Cost \$720,586	0.000	\$73,352,
Env gn 1 2	Dense Suburban Suburban Undeveloped Conmental Mitigation vironmental Mitigation als and Communication Signaling (ATC) Communication (WFiber Optic Backbone)	Hectares Hectares 3% km km	\$291,591 of Line Cost \$720,586 \$595,973	0.000 101.796 101.796	\$73,352, \$60,667,
gn 1 2 3	Dense Suburban Suburban Undeveloped ronmental Mitigation ironmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification Items	Hectares Hectares 3% km km km	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,
9n 2 3 ect	Dense Suburban Suburban Undeveloped Commental Mitigation Vironmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Communication Items Traction Power Supply	Hectares Hectares 3% km km km	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,
9n 1 2 3 ect 1 2	Dense Suburban Suburban Undeveloped ronmental Mitigation ironmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification Items	Hectares Hectares 3% km km km	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,
9n 1 2 3 ect 1 2 ehi	Dense Suburban Suburban Undeveloped Tonmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Virification I tems Traction Power Supply	Hectares Hectares 3% km km km	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,
2 3 ect 1 2 ehi	Dense Suburban Suburban Undeveloped ronmental Mitigation vironmental Mitigation vironmental Mitigation signaling (ATC) Communication (sw/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution cle Costs Fileet size estimate oort Facility Costs	Hectares Hectares 3% km km km km vehicles	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,
1 2 3 eci 1 2 ehi 1 1 1	Dense Suburban Suburban Undeveloped Tonmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Virification I tems Traction Power Supply	Hectares Hectares 3% km km km km	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824, \$37,503,
90 1 2 3 ect 1 2 2 ehi 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dense Suburban Suburban Undeveloped ronmental Mitigation vironmental Mitigation vironmental Mitigation signaling (ATC) Communication (sw/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution cle Costs Fleet size estimate ort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs	Hectares Hectares 3% km km km km vehicles	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824,1 \$37,503, \$69,933,
Environment	Dense Suburban Suburban Undeveloped ronmental Mitigation ironmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution cle Costs Fleet size estimate oort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs ingencies	Hectares Hectares 3% km km km km vehicles ea	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 Cost and Procurement	0.000 101.796 101.796 101.796	\$73,352, \$60,667, \$5,824, \$37,503, \$69,933,
lenting ign 1 2 3 lect 1 2 ehi 1 1 program 1 program 1 program 1 program 1 program 2 program	Dense Suburban Suburban Undeveloped ronmental Mitigation vironmental Mitigation vironmental Mitigation signaling (ATC) Communication (sw/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution cle Costs Fleet size estimate ort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs	Hectares Hectares 3% km km km km vehicles ea	\$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 101.796 101.796 101.796 101.796	\$51,758,2 \$73,352,7 \$60,667,7 \$5,824,0 \$37,503,6 \$69,933,3 \$454,838,4 \$445,920,6 11,725,273,66

		COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
		COST ELEMENTS	ONII	ONIT PRICE		/tn Street	DI Station 12th Street		
Teach Teac					•	•			
2			km			Item cost		Item cost	
					3.5			\$2,369,590	
1 Dec Prince Section D. Traces 10 14.000, 000 10 10 10 10 10 10								\$0	
Employ 10-16 Section - Formation of American Section 10								\$10,402,985 \$0	
1	,							\$(
To proceed commentment						\$0	0.0	\$0	
Section Sect								\$0	
1.5 of Programmer Laborationach		work and Related Items	km	\$1,692,564	0.0	\$0	0.0	\$0	
The Content			Hectares	\$10,294	0.000	\$0	0.000	\$0	
Package Process Control Package								\$176,278	
County Princip (Bits Gland May) 381 Fembrook Cox 381 Fembrook								\$0	
Control Answer Parties Part Fertiment Coats Parties Part Fertiment Coats Parties Par								\$0 \$242 724	
	8	Special Drainage Facilities			5,500		2,000	\$20,950	
				111 700 710					
Design Sequence								\$0 \$0	
								\$0	
S Post Program Carl & Base (- Selecy)	4							\$0	
For two region From Title (or News)	-					7.		\$0	
2 Penn page Trade 18th cap 18th cap 20, 185,502 0.000								\$0 \$141,784,767	
								\$141,764,767	
Secure Character Christ Reside/Hence ea \$90,702.544 0.000 \$10 0.000 1.000	8	Double Track Drill & Blast	km	\$71,355,733	0.000	\$0	0.000	\$0	
11 Concourses								\$0	
12 Cont. State Sect. S								\$0 \$0	
	12	Cut & Cover Double Track Tunnel	km	\$41,006,379	1.900	\$77,912,120	3.500	\$143,522,326	
1.5 Petrahamaria Restrict for Turners Inn 13.496,72 5.900 18.796,76 6.500 11.697,17 1.7								\$0	
16 Section Works								\$0 \$10,697,197	
17 Contented Walls								\$10,097,197	
	17	Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
1 Steen Cheveroscop (SNC - (Lithors) 63 \$14,628,458 1			km	\$25,628,987	0.000	\$0	0.000	\$0	
2 Smrta Deverosang ISS.** (Chiadrisan) 63 \$5,26,258 0 50 0 0 0 0 0 0 0			ea	\$14 628 436	1	\$14 628 436	1	\$14 628 436	
7 Port Undercousing PIGR - (Cultural) 68 \$15,778,389 0 59 0 1 1 1 1 1 1 1 1 1							_	\$11,020,150	
8 Sirest Undercossing Hear (-Undercloped) 9 Sirest (-Undercloped) 9 Sirest Undercossing Hear (-Undercloped) 9 Sirest (-U								\$0	
9 Street Undergrossing HSR. (Underwipped) 0 9 0 0 1 1 1 1 1 1 1 1						7*		\$0 \$0	
10 Sheef Resigney 1958 Trench ea 0 9 0								\$0	
Supplied				4.00,000				\$0	
1 Intermediate pissenger stations - total (Des Worksheet) ea 515,079,000 0 0 0 0 0 0 0 0 0			ea	\$151,702	0	\$0	0	\$0	
Segment 6 - Oakland Allyoper Intermediate Station ea \$15,077,000 0 50 0				1	0	1	0		
Segment 7 - Union City Intermediate Station ea \$38,696,500 0 50 0 0 5				\$26,979,000				\$0	
Segment 9 - Disclos Intermediate Station ea \$93,477,500 0 \$9 0 1 1 1 1 1 1 1 1 1								\$0	
Segment 13 - Los Brans Intermediate Station - Al Grade ea \$48,715,500 0 1 1 1 1 1 1 1 1								\$0	
2 Terminal Passenger Stations								\$0 \$0	
Segment 5 - City CenterTerminal Station ea \$335,903,500 0 \$11,256,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206,752 1208 \$137,206 1208	2			ψ20/, 15/500		40	1	40	
3 Parking - Structure					1		-	\$0	
4 Papting - At Grade	3				,	40			
Sample Track Relocation (Permanent)								\$17,200,732	
2 Single Track Relocation (Permanent)		nd Utility Relocation							
3 Single Track Removal	1							\$0	
4 Major Utility Relocations - Dense Urban km \$758,511 3.300 \$2,658,790 2.800 \$2,123,85 5 Major Utility Relocations - Urban km \$406,345 0.000 \$0 0.000 6 Major Utility Relocations - Otherse Suburban km \$406,345 0.000 \$0 0.000 7 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 8 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 9 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 1 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 1 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 2 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 3 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$0 0.000 4 Major Utility Relocations - Undeveloped km \$11,919 0.000 \$10 0.000 5 Major Utility Relocations - Undeveloped Hectares \$13,499,093 3.360 \$11,755,953 2.520 \$8,81,77 4 Dense Suburban Hectares \$2,322,729 0.000 \$10 0.000 \$10 0.000 5 Suburban Hectares \$408,227 0.000 \$10 0.000 \$10 0.000 6 Major - Maj				154.000		1.0	0.000	\$2,167,176	
6 Major Utility Relocations - Dense Suburban	4	Major Utility Relocations - Dense Urban						\$2,123,832	
7 Major Utility Relocations - Suburban km \$23,971 0.000 \$0 0.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 180 1.000 1				\$579,719	0.000	\$0	0.000	\$0	
8 Major Utility Relocations - Undeveloped Mm \$11,919 0.000 \$0 0.000								\$0 \$0	
Right-Of-Way Required for Each Segment								\$0	
Dense Urban	Right	-of-Way		7,	2.000		1.300	40	
Urban	1		Had	#3 400 000	3.040	A11 7FC 0F0	3 500	40.043.515	
Dense Suburban	+							\$8,817,715 \$0	
Suburban								\$0	
2 Right-of-Way Required for Passenger Station & Parking Facilities			Hectares			\$0	0.000	\$0	
Dense Urban	2			\$291,591	0.000	\$0	0.000	\$0	
Urban	+2			\$3.499.093	1.600	\$5.598.549	1.600	\$5,598,549	
Dense Suburban		Urban		\$2,332,729	0.000	\$0	0.000	\$0	
Undeveloped Hectares \$291,591 0.000 \$0 0.000 50 0.000 50 50 50								\$0	
Environmental Mitigation Swort Sy0,550,537 Sy1,115,115,115,115,115,115,115,115,115,1	+							\$0 \$0	
Environmental Mitigation 3% of Line Cost \$20,550,537 \$21,115,12	Envir		i icual es	\$231,331	0.000	\$0	0.000	\$U	
1 Signaling (ATC)	Env	rironmental Mitigation	3%	of Line Cost		\$20,550,537		\$21,115,139	
Communications (W/Fiber Optic Backbone)			lem	4720 FOC	0.400	ê€ 772 F00	0.200	#6 701 440	
3 Wayside Protection System km \$57,213 9.400 \$537,806 9.300 \$532,00									
I Traction Power Supply km \$368,420 9.400 \$3,463,147 9.300 \$3,426,31 \$3,426,31 9.300 \$3,426,31	3	Wayside Protection System						\$532,085	
2 Traction Power Distribution									
Telect size estimate								\$3,426,305 \$6,389,051	
1 Fleet size estimate			кm	\$080,995	9.400	\$0,457,/50	9.300	\$6,389,U51	
1 Facility cost breakdown ea \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$			vehicles			\$0		\$(
Program Implementation Costs									
Program Implementation Costs 25.5% of Total Cost and Procurement \$184,345,602 \$188,539,14			ea			\$0		\$0	
Contingencies 25% of Total Construction Cost \$180,730,982 \$184,842,37 Cotal Construction \$685,017,891 \$703,837,95 Total Construction and Right of Way \$722,923,929 \$739,369,35			25.5% of Total	Cost and Procurement		\$184,345,602		\$188,539,186	
Total Construction \$685,017,891 \$703,837,95 Total Construction and Right of Way \$722,923,929 \$739,369,35	Conti	ngencies							
otal Construction and Right of Way \$722,923,929 \$739,369,35			25% of Total	al Construction Cost				\$184,842,339	
								\$739 360 357	
Ţ-,									

	COST ELEMENTS	UNIT	UNIT PRICE					
A I:	was and Cook			Oakland		Hayward Line to the 1-880 (San Jose) (Segment 8)		
Align Track	ment Cost			(Segm Quantities	Item Cost	Quantities	Item Cost	
1	Double Track Section - Total	km		22.5		36.9		
3		km km	\$846,282 \$1,600,459	22.500		4.500 24.9	\$3,808,269 \$39,851,435	
4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.0	\$0	7.5	\$12,003,444	
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$(\$(
6		km km	\$1,000,287	0.000		0.00	\$(
7	Freight Single Track	km	\$423,141	0.0	\$0	0.0	\$(
9 Eart l	Four-track construction or reconstruction nwork and Related Items	km	\$1,692,564	0.0	\$0	0.0	\$(
1	Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	0.000	\$(
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	186750.0 0.0	\$1,416,520 \$0	37350.0 0.0	\$283,304	
	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000	\$(\$(
	Security Fencing (Both Sides of R/W)	km	\$86,687	22.500	\$1,950,458	4.500	\$390,092	
Struc	Special Drainage Facilities tures/Tunnels/Walls	5% of t	Earthwork Cost		\$168,349		\$33,670	
	Standard Structure	km	\$11,702,749	0.000		20.900	\$244,587,449	
	High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000		4.000 0.000	\$56,173,194 \$0	
	Waterway Crossing - Primary	km	\$24,606,000	0	\$0	0.000	\$(
-	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0 000		0	\$(
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0.000		0.000 4.700	\$0 \$222,129,469	
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$0	0.000	\$(
	Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758	0.000		0.000	\$(\$(
	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0.000	\$0	0.000	\$(
	Crossovers Cut & Cover Double Track Tunnel	ea	\$80,782,844	0.000	\$0 \$0	0.000	\$(
	Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	2.800 0.000	\$114,817,861 \$0	
14	Trench Long	km	\$33,464,567	0.000	\$0	0.000	\$(
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0 \$0	7.500 0.000	\$12,342,920 \$0	
17	Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$(
	B Single Track Cut and Cover Subway e Separations	km	\$25,628,987	0.000	\$0	0.000	\$0	
1	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$(
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0		0	\$(
	Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea	\$931,886 \$15,278,589	0 13		1	\$931,886 \$30,557,177	
8	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	1	\$5,851,374	3	\$17,554,123	
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea	\$986,065	0		10	\$9,860,649 \$0	
	Minor crossing closures	ea	\$151,702	4		4	\$606,809	
	ing Items							
1	Intermediate passenger stations - total (See Worksheet) Segment 6 - Oakland Airport Intermediate Station	ea	\$26,979,000	1		1	\$(
	Segment 7 - Union City Intermediate Station	ea	\$28,669,500	0	\$0	0	\$(
	Segment 8 - Union City Intermediate Station	ea	\$28,669,500	0		1	\$28,669,500	
	Segment 9 - Diridon Intermediate Station Segment 13 - Los Banos Intermediate Station - At Grade	ea	\$93,437,500 \$28,715,500	0		0	\$(\$(
2	Terminal Passenger Stations	ea		0		0		
	Segment 4 - West Oakland Terminal Station Segment 5 - City CenterTerminal Station	ea	\$335,903,500 \$335,903,500	0		0	\$(\$(
3	Parking - Structure	space	\$14,244	0	7.	850	\$12,107,400	
	Parking - At Grade and Utility Relocation	space	\$2,042	94.000	\$191,948	0	\$(
	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	\$(
2	Single Track Relocation (Permanent)	km	\$1,083,588	22.500	\$24,380,727	15.000	\$16,253,818	
_	Single Track Removal Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000	\$0 \$0	0.000	\$(\$(
5	Major Utility Relocations - Urban	km	\$579,719	22.500	\$13,043,689	29.400	\$17,043,753	
	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000		0.000	\$(
8	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000		0.000	\$(\$(
Right	t-of-Way	· · ·	7,- +2	2.300	701		4.	
1	Right-of-Way Required for Each Segment Dense Urban	Hectares	\$3,499,093	0	\$0	0.000	\$(
	Urban	Hectares	\$2,332,729	42.550	\$99,257,608	17.700	\$41,289,299	
$ \parallel$ $^{-}$	Dense Suburban Suburban	Hectares	\$1,166,364	0.000		0.000	\$(
+	Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000		0.000	\$(\$(
2	Right-of-Way Required for Passenger Station & Parking Facilities	Hectares						
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	2.400		0.000 2.400	\$0 \$5,598,549	
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	\$(
	Suburban Undeveloped	Hectares	\$408,227	0.000		0.000	\$(
Envir	ronmental Mitigation	Hectares	\$291,591	0.000	\$0	0.000	\$(
En	vironmental Mitigation	3%	of Line Cost		\$10,407,258		\$27,889,297	
	als and Communication Signaling (ATC)	km	\$720,586	22.500	\$16,213,183	36.900	\$26,589,620	
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	22.500	\$13,409,400	36.900	\$21,991,415	
3 Fleat	Wayside Protection System rification Items	km	\$57,213	22.500	\$1,287,302	36.900	\$2,111,176	
	Traction Power Supply	km	\$368,420	22.500	\$8,289,447	36.900	\$13,594,693	
2	Traction Power Distribution	km	\$686,995	22.500		36.900	\$25,350,104	
	e Costs Fleet size estimate	vehicles			\$0		\$(
Supp	ort Facility Costs	vernetes						
Prog	Facility cost breakdown ram Implementation Costs	ea			\$0		\$(
Pro	ogram Implementation Costs	25.5% of Total	Cost and Procurement		\$117,853,860		\$256,127,196	
Cont	ingencies							
	ntingencies Construction	25% of Tota	l Construction Cost		\$115,543,000 \$346,908,587		\$251,105,094 \$929,643,232	
I ULD								
Total	Construction and Right of Way d Total				\$462,172,002 \$695,568,863		\$1,004,420,377 \$1,511,652,667	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
				Niles Junction to		San Jose		
Alian	ment Cost			(San Jose) (Segment 7)		(Segment 9)		
Tracl	(Quantities	Item Cost	Quantities	Item Cost	
2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	43.7 20.300	\$17,179,527	15.6 12.200	\$10,324,642	
3		km	\$1,600,459	20.2	\$32,329,277	3.4	\$5,441,561	
5		km km	\$1,600,459 \$1,600,459	3.2 0.000	\$5,121,470 \$0	0.0	\$0 \$0	
,	Single Track Sections - In Tunnel or Subway	km	\$1,000,439	0.000	\$0	0.000	\$0	
7		km km	\$846,282 \$423,141	0.0	\$0 \$0	0.000	\$0 \$0	
9	Four-track construction or reconstruction	km	\$1,692,564	0.0	\$0	0.000	\$0	
	nwork and Related Items Site Preparation - Undeveloped	Hedene	\$10,294	0.000	ėn.	0.000	40	
	Total Cut	Hectares m3	\$10,294	168490.0	\$0 \$1,278,016	101260.0	\$0 \$768,069	
	Total Fill Landscape/Erosion Control	m3	\$7.59	0.0	\$0	0.0	\$0	
	Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.000 20.300	\$0 \$1,759,747	0.000 12.200	\$0 \$1,057,582	
8	Special Drainage Facilities tures/Tunnels/Walls	5% of E	Earthwork Cost		\$151,888		\$91,283	
	Standard Structure	km	\$11,702,749	14.900	\$174,370,956	0.000	\$0	
	High Structure	km	\$14,043,299	5.300	\$74,429,482	3.400	\$47,747,215	
	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000	\$0 \$0	0.000	\$0 \$0	
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	\$0	
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0.000 2.200	\$0 \$103,975,496	0.000	\$0 \$0	
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$0	0.000	\$0	
	Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758	0.000 0.000	\$0 \$0	0.000	\$0 \$0	
10	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0.000	\$0	0.000	\$0	
	Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379	0.000 1.000	\$0 \$41,006,379	0.000	\$0 \$0	
13	Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0	
	Trench Long	km	\$33,464,567	0.000	\$0 \$5,300,313	0.000	\$0	
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	3.200 0.000	\$5,266,313 \$0	0.000 0.000	\$0 \$0	
	Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
	B Single Track Cut and Cover Subway e Separations	km	\$25,628,987	0.000	\$0	0.000	\$0	
1	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0	
	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	1	\$5,526,298 \$931,886	1 0	\$5,526,298 \$0	
7		ea	\$15,278,589	5	\$76,392,943	0	\$0	
	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	8	\$46,810,995 \$986,065	0	\$0 \$0	
10	Street Bridging HSR Trench	ea		0	\$0	0	\$0	
	Minor crossing closures ling Items	ea	\$151,702	2	\$303,405	1	\$151,702	
	Intermediate passenger stations - total (See Worksheet)	ea		1		1		
	Segment 6 - Oakland Airport Intermediate Station Segment 7 - Union City Intermediate Station	ea	\$26,979,000 \$28,669,500	0	\$0 \$28,669,500	0	\$0 \$0	
	Segment 8 - Union City Intermediate Station	ea	\$28,669,500	0	\$20,009,300	0	\$0 \$0	
	Segment 9 - Diridon Intermediate Station Segment 13 - Los Banos Intermediate Station - At Grade	ea	\$93,437,500	0	\$0 \$0	1	\$93,437,500	
2	Terminal Passenger Stations	ea ea	\$28,715,500	0	\$0	0	\$0	
	Segment 4 - West Oakland Terminal Station	ea	\$335,903,500	0	\$0	0	\$0	
3	Segment 5 - City CenterTerminal Station Parking - Structure	ea space	\$335,903,500 \$14,244	850	\$0 \$12,107,400	0	\$0 \$0	
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	95	\$193,990	
	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	\$0	
2	Single Track Relocation (Permanent)	km	\$1,083,588	38.500	\$41,718,132	23.400	\$25,355,956	
3	Single Track Removal Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000	\$0 \$0	0.000 7.800	\$0 \$5,916,390	
	Major Utility Relocations - Urban	km	\$579,719	20.250	\$11,739,320	7.800	\$4,521,812	
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	20.250 0.000	\$8,228,495 \$0	0.000	\$0 \$0	
8	Major Utility Relocations - Undeveloped	km	\$11,919	0.000	\$0	0.000	\$0	
	k-of-Way Right-of-Way Required for Each Segment			T		T		
1	Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	\$0	
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	25.325 25.325	\$59,076,356 \$29,538,178	0.000	\$0 \$0	
	Suburban	Hectares	\$1,166,364 \$408,227	0.000	\$29,538,178 \$0	0.000	\$0 \$0	
	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	Hectares	\$291,591	0.000	\$0	0.000	\$0	
2	Dense Urban	Hectares Hectares	\$3,499,093	0.000	\$0	1.400	\$4,898,730	
	Urban	Hectares	\$2,332,729	2.400	\$5,598,549	0.000	\$0	
+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0	
	Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	\$0	
	ronmental Mitigation vironmental Mitigation	3%	of Line Cost		\$23,893,154		\$7,152,880	
Signa	als and Communication							
	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	43.700 43.700	\$31,489,605 \$26,044,034	15.600 15.600	\$11,241,140 \$9,297,184	
3	Wayside Protection System	km	\$57,213	43.700	\$2,500,227	15.600	\$892,530	
				43.700	\$16,099,948	15.600	\$5,747,350	
	rification Items	km	¢ጻፍጽ 4ንበ				ν,,,τ,,ου	
1 2	Traction Items Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	43.700	\$30,021,668	15.600	\$10,717,117	
1 Vehicl	rification Items Traction Power Supply Traction Power Distribution e Costs	km			\$30,021,668			
Vehicl Supp	rification Items Traction Power Supply Traction Power Distribution e Costs Fleet size estimate ort Facility Costs				\$30,021,668 \$0			
Vehicl Supp	rification Items Traction Power Supply Traction Power Distribution e Costs Fleet size estimate oror Facility Costs Facility cost breakdown	km			\$30,021,668		\$0	
Vehicl Supp Prog	Traction Items Traction Power Supply Traction Power Distribution e Costs Fleet size estimate Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs	vehicles ea			\$30,021,668 \$0		\$10,717,117 \$0 \$0 \$63,872,637	
1 2 Vehicl 1 Supp 1 Prog Pro Cont Cont	Traction Items Traction Power Supply Traction Power Distribution e Costs Fleet size estimate ort Facility Costs Facility cost breakdown ram Implementation Costs orgam Implementation Costs ingencies	km vehicles ea 25.5% of Total	\$686,995 Cost and Procurement		\$30,021,668 \$0 \$0 \$233,208,900		\$0 \$0 \$63,872,637	
1 2 2	Traction Ttems Traction Power Supply Traction Power Distribution e Costs Fleet size estimate ort Facility Costs Facility cost breakdown ram Implementation Costs ingencies tingencies Construction	km vehicles ea 25.5% of Total	\$686,995		\$30,021,668 \$0 \$0		\$0 \$0 \$63,872,637 \$62,620,232 \$238,429,320	
Vehicl Supp Prog Prog Cont Co Tota	rification Items Traction Power Supply Traction Power Distribution e Costs Fleet size estimate Ort Facility Costs Facility Costs Facility cost breakdown ram Implementation Costs orgam Implementation Costs integencies intigencies	km vehicles ea 25.5% of Total	\$686,995 Cost and Procurement		\$30,021,668 \$0 \$0 \$233,208,900 \$233,208,900		\$0 \$0 \$63,872,637	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
					an Jose	Revised Merced		
Aligr Frac	ment Cost			(Segme Quantities	ent 10) Item Cost	(Segmer Quantities	nt 21) Item Cost	
	Double Track Section - Total	km		15.0	Item cost	15.018	Item Cost	
2	Double Track Section - At-Grade	km	\$846,282	15.000		14.518	\$12,286,323.66	
3		km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.500	\$800,229.63 \$0.00	
5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0	\$0.00	
6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0	\$0.00 \$0.00	
7	Freight Single Track	km	\$423,141	0.0	\$0	0	\$0.00	
9 artl	Four-track construction or reconstruction work and Related Items	km	\$1,692,564	0.0	\$0	0	\$0.00	
1	Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	45.774864	\$471,210.32	
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	124500.0 0.0	\$944,347 \$0	442508.64 442508.64	\$3,356,478.89 \$3,356,478.89	
6	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	45.774864	\$314,966.90	
	Security Fencing (Both Sides of R/W) Special Drainage Facilities	km	\$86,687 Earthwork Cost	15.000	\$1,300,305 \$112,233	14.518	\$1,258,522.27 \$437,883	
Strue	tures/Tunnels/Walls	370 OI E						
	Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	0.000	\$0 \$0	0.2	\$2,340,549.75 \$0.00	
3	Long Span Structure	km	\$32,020,021	0.000	\$0	0	\$0.00	
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0		0.3	\$7,381,800.00 \$0.00	
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0	0	\$0.00	
	Twin Single Track TBM (<6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0.000	\$0 \$0	0	\$0.00 \$0.00	
	Double Track Drill & Blast	km	\$71,355,733	0.000	\$0	0	\$0.00	
9	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km	\$82,012,758	0.000	\$0	0	\$0.00	
	Seismic Chamber (Drill & Blast/Mined) Crossovers	ea	\$80,782,844 \$80,782,844	0.000	\$0 \$0	0	\$0.00 \$0.00	
	Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0	\$0.00	
	Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	0.000	\$0 \$0	0	\$0.00 \$0.00	
15	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0.00	
	Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	0.000	\$0 \$0	0	\$0.00 \$0.00	
18	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0	\$0.00	
irad	e Separations Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0.00	
2	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	Ó	\$0.00	
	Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea ea	\$931,886 \$15,278,589	<u>4</u>	\$3,727,542 \$0	0	\$0.00 \$0.00	
8	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0.00	
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea ea	\$986,065	0		0	\$0.00 \$0.00	
	Minor crossing closures	ea	\$151,702	8		23	\$3,489,152.87	
	Intermediate passenger stations - total (See Worksheet)			0				
1	Segment 6 - Oakland Airport Intermediate Station	ea	\$26,979,000	0		0	\$0.00	
	Segment 7 - Union City Intermediate Station	ea	\$28,669,500	0		0	\$0.00	
	Segment 8 - Union City Intermediate Station Segment 9 - Diridon Intermediate Station	ea ea	\$28,669,500 \$93,437,500	0		0	\$0.00 \$0.00	
	Segment 13 - Los Banos Intermediate Station - At Grade	ea	\$28,715,500	0	\$0	0	\$0.00	
2	Terminal Passenger Stations Segment 4 - West Oakland Terminal Station	ea	\$335,903,500	0	\$0	0	\$0.00	
	Segment 5 - City CenterTerminal Station	ea	\$335,903,500	0	\$0	0	\$0.00	
	Parking - Structure Parking - At Grade	space space	\$14,244 \$2,042	0		0	\$0.00 \$0.00	
Rail	and Utility Relocation							
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0.000 15.000	\$0 \$16,253,818	0	\$0.00 \$0.00	
3	Single Track Removal	km	\$54,000	0.000	\$0	0	\$0.00	
	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0.000	\$0 \$0	0	\$0.00 \$0.00	
	Major Utility Relocations - Orban Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0	\$0.00	
	Major Utility Relocations - Suburban	km	\$232,971	15.000	\$3,494,571	0	\$0.00	
₹igh	Major Utility Relocations - Undeveloped t-of-Way	km	\$11,919	0.000	\$0	15.018	\$179,006.55	
1	Right-of-Way Required for Each Segment	11	19 100 05	***				
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0	\$0.00 \$0.00	
1	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0	\$0.00	
+	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000		0 45.774864	\$0.00 \$13,347,539.92	
2	Right-of-Way Required for Passenger Station & Parking Facilities	Hectares						
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0.000		0	\$0.00 \$0.00	
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0	\$0.00	
+	Suburban Undeveloped	Hectares	\$408,227 \$291,591	0.000 0.000		0	\$0.00 \$0.00	
	onmental Mitigation	Hectares		0.000			•	
	vironmental Mitigation als and Communication	3% (of Line Cost		\$2,285,354		\$2,164,624	
	Signaling (ATC)	km	\$720,586	15.000		15.018	\$10,821,759.33	
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	15.000	\$8,939,600	15.018	\$8,950,327.26	
1 3 Elect	Wayside Protection System rification Items	km	\$57,213	15.000	\$858,202	15.018	\$859,231.42	
1	Traction Power Supply	km	\$368,420	15.000	\$5,526,298	15.018	\$5,532,929.58	
1 2	Traction Power Distribution e Costs	km	\$686,995	15.000	\$10,304,920	15.018	\$10,317,286.34	
	Fleet size estimate	vehicles			\$0		\$0.00	
ehicl 1	rieet size estimate							
/ehicl	ort Facility Costs	63	l l		6111		en nr	
ehicl 1 Supp 1 Prog	ort Facility Costs Facility cost breakdown ram Implementation Costs	ea			\$0		\$0.00	
lehicles Supported Prog	ort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs		Cost and Procurement		\$20,008,276		\$0.00 \$22,354,907	
Prog	ort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs ingencies intingencies	25.5% of Total	Cost and Procurement		\$20,008,276 \$19,615,957		\$22,354,907 \$21,916,575	
Prog	ort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Costs ingencies	25.5% of Total			\$20,008,276		\$22,354,907	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
				Revised	Merced	Revised Merced		
	ment Cost			(Segme		(Segmen		
Track	Double Track Section - Total	km		Quantities 8.783	Item Cost	Quantities 4.21	Item Cost	
2	Double Track Section - At-Grade	km	\$846,282	8.483	\$7,179,011.13	4.160	\$3,520,533.5	
3		km km	\$1,600,459 \$1,600,459	0.300	\$480,137.78 \$0.00	0.050	\$80,022.90 \$0.00	
5		km	\$1,600,459	0.0	\$0.00	0.0	\$0.00	
-	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0	\$0.00	0	\$0.00	
7		km km	\$846,282 \$423,141	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
9	Four-track construction or reconstruction	km	\$1,692,564	0	\$0.00	0	\$0.00	
	Nwork and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	26.770584	\$275,578.66	12.83208	\$132,094.5	
2	Total Cut	m3	\$7.59	258561.84	\$1,961,221.27	126796.8	\$961,768.30	
	Total Fill Landscape/Erosion Control	m3	\$7.59 \$6,881	258561.84 26.770584	\$1,961,221.27	126796.8 12.83208	\$961,768.30 \$88,294.70	
	Security Fencing (Both Sides of R/W)	Hectares km	\$86,687	8.483	\$184,202.57 \$735,366.06	4.160	\$360,618.0	
	Special Drainage Facilities tures/Tunnels/Walls	5% of E	arthwork Cost		\$255,879		\$125,22	
	Standard Structure	km	\$11,702,749	0.2	\$2,340,549.75	0	\$0.00	
2	High Structure	km	\$14,043,299	0	\$0.00	0	\$0.00	
	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0	\$0.00 \$2,460,600.00	0.05	\$0.00 \$1,230,300.00	
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0.00	0	\$0.00	
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0.00	0	\$0.00	
8	Double Track Drill & Blast	km	\$71,355,733	0	\$0.00	0	\$0.00	
	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
11	Crossovers	ea	\$80,782,844	0	\$0.00	0	\$0.00	
	Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
14	Trench Long	km	\$33,464,567	0	\$0.00	0	\$0.00	
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0.00 \$0.00	0.000	\$0.00 \$0.00	
	7 Containment Walls	km	\$3,749,214	0	\$0.00	0	\$0.00	
	Single Track Cut and Cover Subway	km	\$25,628,987	0	\$0.00	0	\$0.00	
1	e Separations Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0.00	0	\$0.00	
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0.00	0	\$0.00	
	Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea ea	\$931,886 \$15,278,589	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
8	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0.00	0	\$0.00	
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea ea	\$986,065	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
	Minor crossing closures	ea	\$151,702	16	\$2,427,236.78	11	\$1,668,725.29	
	ling Items							
1	Intermediate passenger stations - total (See Worksheet) Segment 6 - Oakland Airport Intermediate Station	ea	\$26,979,000	0	\$0.00	0	\$0.00	
	Segment 7 - Union City Intermediate Station	ea	\$28,669,500	0	\$0.00	0	\$0.00	
	Segment 8 - Union City Intermediate Station Segment 9 - Diridon Intermediate Station	ea ea	\$28,669,500 \$93,437,500	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
	Segment 3 - Los Banos Intermediate Station - At Grade	ea	\$28,715,500	0	\$0.00	0	\$0.00	
2		ea	+225 002 500		+0.00		+0.00	
	Segment 4 - West Oakland Terminal Station Segment 5 - City CenterTerminal Station	ea ea	\$335,903,500 \$335,903,500	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
	Parking - Structure	space	\$14,244	0	\$0.00	0	\$0.00	
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0.00	0	\$0.00	
1	Single Track Relocation (Temporary)	km	\$1,083,588	0	\$0.00	0	\$0.00	
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
4	Major Utility Relocations - Dense Urban	km	\$758,511	0	\$0.00	0	\$0.00	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km	\$579,719	0	\$0.00	0	\$0.00 \$0.00	
7	Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	0	\$0.00 \$0.00	0	\$0.00	
8 Diable	Major Utility Relocations - Undeveloped t-of-Way	km	\$11,919	8.783	\$104,688.67	4.210	\$50,180.9	
	Right-of-Way Required for Each Segment							
T	Dense Urban	Hectares	\$3,499,093	0	\$0.00	0	\$0.00	
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
	Suburban	Hectares	\$408,227	0	\$0.00	0	\$0.00	
2	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	Hectares Hectares	\$291,591	26.770584	\$7,806,062.27	12.83208	\$3,741,719.47	
	Dense Urban	Hectares	\$3,499,093	0	\$0.00	0	\$0.00	
1	Urban Penes Suburban	Hectares	\$2,332,729	0	\$0.00	0	\$0.00	
+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0	\$0.00 \$0.00	0	\$0.00 \$0.00	
Enri	Undeveloped	Hectares	\$291,591	0	\$0.00	0	\$0.00	
	onmental Mitigation vironmental Mitigation	3% (of Line Cost		\$1,251,037		\$582,192	
Signa	als and Communication							
	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	8.783 8.783	\$6,328,906.12 \$5,234,433.64	4.210 4.210	\$3,033,666.72 \$2,509,047.66	
3	Wayside Protection System	km	\$57,213	8.783	\$5,254,433.04	4.210	\$2,509,047.00	
	Traction Items Traction Power Supply	lone	\$368,420	8.783	\$2 22E 024 70	4.21	\$1,551,047.6	
2	Traction Power Distribution	km km	\$368,420 \$686,995	8.783	\$3,235,831.70 \$6,033,874.41	4.21	\$2,892,247.6	
	e Costs	. add to be a						
Supp	Fleet size estimate ort Facility Costs	vehicles			\$0.00		\$0.00	
1	Facility cost breakdown ram Implementation Costs	ea			\$0.00		\$0.00	
	ram Implementation Costs ogram Implementation Costs	25,5% of Total	Cost and Procurement	Т	\$12,943,378		\$6,051,233	
Conti	ingencies			L.				
	ntingencies Construction	25% of Tota	l Construction Cost		\$12,689,586 \$41,701,245		\$5,932,583 \$19,406,412	
	Construction and Right of Way				\$50,758,345		\$23,730,324	
	d Total				\$76,391,309		\$35,714,138	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
				Revised	Merced	Revised Merced		
	ment Cost			(Segme		(Segmei		
Track	Double Track Section - Total	km	Т	Quantities 11.057	Item Cost	Quantities 50.834	Item Cost	
2	Double Track Section - At-Grade	km	\$846,282	10.357	\$8,764,943.80	49.534	\$41,919,737.99	
3	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	0.700	\$1,120,321.48 \$0.00	1.300	\$2,080,597.03 \$0.00	
5		km	\$1,600,459	0	\$0.00	0	\$0.00	
6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0		0	\$0.00 \$0.00	
7		km	\$423,141	0		0	\$0.00	
9 Earth	Four-track construction or reconstruction	km	\$1,692,564	0	\$0.00	0	\$0.00	
1	Site Preparation - Undeveloped	Hectares	\$10,294	33.701736	\$346,928.52	154.942032	\$1,594,986.38	
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	315681.36 315681.36	\$2,394,479.40 \$2,394,479.40	1509796.32 1509796.32	\$11,451,978.61 \$11,451,978.61	
	Landscape/Erosion Control	Hectares	\$6,881	33.701736	\$2,394,479.40	154.942032	\$1,066,122.47	
	Security Fencing (Both Sides of R/W) Special Drainage Facilities	km	\$86,687 Earthwork Cost	10.357	\$897,817.55 \$313,280	49.534	\$4,293,955.24 \$1,492,951	
Struc	tures/Tunnels/Walls	3% OF E						
	Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	0.3	\$3,510,824.63 \$0.00	0.7	\$8,191,924.13 \$0.00	
3	Long Span Structure	km	\$32,020,021	0	\$0.00	0	\$0.00	
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.4		0.6	\$14,763,600.00 \$0.00	
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0	\$0.00	0	\$0.00	
	Twin Single Track TBM (<6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0		0	\$0.00 \$0.00	
8	Double Track Drill & Blast	km	\$71,355,733	0	\$0.00	0	\$0.00	
	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0		0	\$0.00 \$0.00	
11	Crossovers	ea	\$80,782,844	0	\$0.00	0	\$0.00	
	Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0		0	\$0.00 \$0.00	
14	Trench Long	km	\$33,464,567	0	\$0.00	0	\$0.00	
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0.00 \$0.00	0.000	\$0.00 \$0.00	
17	Containment Walls	km	\$1,278,634	0		0	\$0.00	
	Single Track Cut and Cover Subway Separations	km	\$25,628,987	0	\$0.00	0	\$0.00	
1	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0		0	\$0.00	
	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	0		0	\$0.00 \$2,795,656.65	
7	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0.00	0	\$0.00	
	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	0		0	\$0.00 \$0.00	
10	Street Bridging HSR Trench	ea	\$300,003	0	\$0.00	0	\$0.00	
	Minor crossing closures ing Items	ea	\$151,702	16	\$2,427,236.78	72	\$10,922,565.50	
	Intermediate passenger stations - total (See Worksheet)	ea						
	Segment 6 - Oakland Airport Intermediate Station Segment 7 - Union City Intermediate Station	ea ea	\$26,979,000 \$28,669,500	0		0	\$0.00 \$0.00	
	Segment 8 - Union City Intermediate Station	ea	\$28,669,500	0	\$0.00	0	\$0.00	
	Segment 9 - Diridon Intermediate Station Segment 13 - Los Banos Intermediate Station - At Grade	ea ea	\$93,437,500 \$28,715,500	0		0	\$0.00 \$28,715,500.00	
2	Terminal Passenger Stations	ea	\$20,713,300		φ0.00		Ψ20,713,300.00	
	Segment 4 - West Oakland Terminal Station Segment 5 - City CenterTerminal Station	ea ea	\$335,903,500 \$335,903,500	0		0	\$0.00 \$0.00	
	Parking - Structure	space	\$14,244	0	\$0.00	0	\$0.00	
	Parking - At Grade	space	\$2,042	0	\$0.00	47	\$95,974.00	
1	Single Track Relocation (Temporary)	km	\$1,083,588	0		0	\$0.00	
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	0		0	\$0.00 \$0.00	
	Major Utility Relocations - Dense Urban	km	\$758,511	0		0	\$0.00	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	0		0	\$0.00 \$0.00	
7	Major Utility Relocations - Suburban	km	\$232,971	0	\$0.00	0	\$0.00	
8 Right	Major Utility Relocations - Undeveloped	km	\$11,919	11.057	\$131,793.54	50.834	\$605,914.15	
	Right-of-Way Required for Each Segment							
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0		0	\$0.00 \$0.00	
	Dense Suburban	Hectares	\$1,166,364	0	\$0.00	0	\$0.00	
+	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0 33.701736		0 154.942032	\$0.00 \$45,179,707.31	
2	Right-of-Way Required for Passenger Station & Parking Facilities	Hectares						
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0		0.000 0.000	\$0.00 \$0.00	
	Dense Suburban	Hectares	\$1,166,364	0	\$0.00	0.000	\$0.00	
	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0		0.000 26.000	\$0.00 \$7,581,366.88	
	onmental Mitigation			- U		25.550		
	vironmental Mitigation	3% 0	of Line Cost		\$1,777,078		\$7,947,862	
1	Signaling (ATC)	km	\$720,586	11.057	\$7,967,518.50	50.834	\$36,630,264.59	
	Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	11.057 11.057	\$6,589,676.96 \$632,608.99	50.834 50.834	\$30,295,707.56 \$2,908,387.93	
Elect	rification Items							
	Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	11.057 11.057	\$4,073,618.48 \$7,596,100.35	50.834 50.834	\$18,728,255.58 \$34,922,688.35	
Vehicle	e Costs		+222,555	22.007				
	Fleet size estimate ort Facility Costs	vehicles			\$0.00		\$0.00	
	Facility cost breakdown am Implementation Costs	ea			\$0.00		\$0.00	
	gram Implementation Costs gram Implementation Costs	25.5% of Total	Cost and Procurement		\$18,064,232		\$83,037,609	
Conti	ngencies							
Cor	ntingencies Construction	25% of Tota	al Construction Cost		\$17,710,031 \$59,235,923		\$81,409,421	
Total							5204.928.74h	
Total	Construction and Right of Way d Total				\$70,840,124 \$106,614,387		\$264,928,746 \$325,637,682 \$490,084,712	

Alignment Cost	15	
Segment 200	Segme Quantities 10.88 11 10.650 15 0.150 0.00	\$11) \$9,012,904.46 \$240,068.85 \$0.00 \$0.0
Track	Quantities 10.8 10.8 11.0.50 15.0 10.0	\$9,012,904.46 \$240,068.85 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$338,864.75 \$2,462,219.33 \$22,462,219.33 \$226,504.36 \$332,655 \$0.00
1 Double Track Section - Total	10.8 11 10.650 15 0.150 10 0 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 10 0 0 0	\$9,012,904.46 \$240,068.85 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$2,000 \$2,000 \$2,000 \$2,000 \$2,000 \$3,690,000 \$3,690,000 \$0.00
2 Double Track Section - At-Grade	11	\$240,068.85 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$338,864.75 \$2,462,219.33 \$22,462,219.33 \$226,504.36 \$320,655 \$0.00
3 Double Track Section - On Structure	15	\$240,068.85 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$338,864.75 \$2,462,219.33 \$22,462,219.33 \$226,504.36 \$320,655 \$0.00
S Double Track Section - In Trench	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$3.8864.79 \$2,462,219.33 \$226,504.34 \$923,216.89 \$320,655 \$0.00
Single Track Sections - In Tunnel or Subway	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$338,864.75 \$2,462,219.33 \$2,462,219.33 \$226,504.36 \$320,653 \$0.00
6 Freight Double Track	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$338,864.75 \$2,462,219.33 \$22,462,219.33 \$226,504.34 \$923,216.85 \$0.00 \$0
9 Four-track construction or reconstruction km \$1,692,564 0 \$0.00	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$338,864.75 \$2,462,219.33 \$2,462,219.33 \$226,504.36 \$923,216.85 \$320,65: \$0.00
Site Preparation - Undeveloped	14 32.9184 15 324612 15 324612 15 324612 10.650 10 0 0 0	\$338,864.7 ⁱ \$2,462,219.3 ⁱ \$22,6504.3 ⁱ \$226,504.3 ⁱ \$320,65 ⁱ \$0.00 \$0.00 \$3,690,900.00 \$
1 Site Preparation - Undeveloped	15 324612 3 324612 3 32,9184 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$2,462,219.3: \$2,462,219.3: \$226,504.3: \$923,216.8: \$320,65: \$0.00
2 Total Cut	15 324612 3 324612 3 32,9184 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$2,462,219.3: \$2,462,219.3: \$226,504.3: \$923,216.8: \$320,65: \$0.00
6 Landscape/Erosion Control	32.9184 10.650 10	\$226,504.34 \$923,216.83 \$320,653 \$0.00 \$0.00 \$3,690,900.00 \$0.00
7 Security Fencing (Both Sides of R/W) km \$86,687 21.144 \$1,832,910.5 8 Special Drainage Facilities \$5% of Earthwork Cost \$636,35 1 Standard Structure km \$11,702,749 0 \$0.0 2 High Structure km \$11,702,749 0 \$0.0 3 Long Span Structure km \$32,020,021 0 \$0.0 4 Waterway Crossing - Primary km \$24,606,000 0.2 \$4,921,200.0 Waterway Crossing - Secondary (Irrigation/Canal Crossing) km \$19,700,000 0 \$0.0 5 Twin Single Track Drill & Blast (<6 Miles) km \$63,942,150 0 \$0.0 6 Twin Single Track TBM (<6 Miles) km \$47,261,589 0 \$0.0 8 Double Track Mined (Soft Soil) km \$71,355,733 0 \$0.0 9 Double Track Mined (Soft Soil) km \$82,012,758 0 \$0.0 10 Seismic Chamber (Drill & Blast/Mined) ea \$80,782,844 0 \$0.0 11 Crossovers ea \$80,782,844 0 \$0.0 12 Cut & Cover Double Track Tunnel km \$43,3464,567 0 \$0.0 15 Mechanical & Electrical for Tunnels km \$33,464,567 0 \$0.0 16 Retaining Walls km \$33,464,567 0 \$0.0 17 Containment Walls km \$33,464,567 0 \$0.0 18 Single Track Cut and Cover Subway km \$31,628,634 0 \$0.0 19 Sireet Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.0 10 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.0 2 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Overcrossing HSR - (Urban) ea \$50,520,890 0 \$0.0 3 Street Ove	10.650 1	\$923,216.8! \$320,65! \$0.00 \$0.00 \$3,690,900.00 \$
8 Special Drainage Facilities 5% of Earthwork Cost 5636,35	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$320,65; \$0.00 \$0.00 \$3,690,900.00 \$0.00
1 Standard Structure	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$3,690,900.00 \$0.0
2 High Structure	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$3,690,900.00 \$0.0
3 Long Span Structure	00 0.15 0 0 0.00 00 0 0 0	\$3,690,900.00 \$0.0
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00
5 Twin Single Track Drill & Blast (<6 Miles)	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
6 Twin Single Track TBM (<6 Miles)	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
8 Double Track Drill & Blast km \$71,355,733 0 \$0.00 9 Double Track Mined (Soft Soil) km \$82,012,758 0 \$0.00 10 Seismic Chamber (Drill & Blast/Mined) ea \$80,782,844 0 \$0.00 11 Crossovers ea \$80,782,844 0 \$0.00 12 Cut & Cover Double Track Tunnel km \$41,006,379 0 \$0.00 13 Trench Short km \$42,322,835 0 \$0.00 14 Trench Long km \$43,3464,567 0 \$0.00 15 Mechanical & Electrical for Tunnels km \$33,464,567 0 \$0.00 15 Mechanical & Electrical for Tunnels km \$33,749,214 0 \$0.00 17 Containment Walls km \$3,749,214 0 \$0.00 18 Single Track Cut and Cover Subway km \$1,278,634 0 \$0.00 18 Single Track Cut and Cover Subway km \$25,528,987 0 \$0.00 1 Street Overcrossing HSR - (Urban) ea \$14,628,436 0 \$0.00 3 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.00 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.00 50.00 \$0.00 50.00 50.00 50.00 60.00 60.00 60.00 7 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.00 8 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped) ea \$951,886 0 \$0.00 9 Street Overcrossing HSR - (Undeveloped)	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
9 Double Track Mined (Soft Soil) km \$82,012,758 0 \$0.0 10 Seismic Chamber (Drill & Blast/Mined) ea \$80,782,844 0 \$0.0 11 Crossovers ea \$80,782,844 0 \$0.0 12 Cut & Cover Double Track Tunnel km \$41,006,379 0 \$0.0 13 Trench Short km \$42,322,835 0 \$0.0 14 Trench Long km \$33,464,567 0 \$0.0 15 Mechanical & Electrical for Tunnels km \$33,464,567 0 \$0.0 16 Retaining Walls km \$3,742,114 0 \$0.0 17 Containment Walls km \$3,749,214 0 \$0.0 18 Single Track Cut and Cover Subway km \$1,278,634 0 \$0.0 18 Single Track Cut and Cover Subway km \$25,628,987 0 \$0.0 19 Street Overcrossing HSR - (Urban) ea \$1,452,436 0 \$0.0 2 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.0 50.0 \$0.0	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
10 Seismic Chamber (Drill & Blast/Mined) ea \$80,782,844 0 \$0.0 11 Crossovers ea \$80,782,844 0 \$0.0 12 Cut & Cover Double Track Tunnel km \$41,006,379 0 \$0.0 13 Trench Short km \$42,322,835 0 \$0.0 14 Trench Long km \$33,464,567 0 \$0.0 15 Mechanical & Electrical for Tunnels km \$1,645,723 0.000 \$0.0 16 Retaining Walls km \$3,749,214 0 \$0.0 17 Containment Walls km \$1,278,634 0 \$0.0 18 Single Track Cut and Cover Subway km \$25,628,987 0 \$0.0 18 Single Track Cut and Cover Subway km \$25,628,987 0 \$0.0 19 Street Overcrossing HSR - (Urban) ea \$14,628,436 0 \$0.0 2 Street Overcrossing HSR - (Urban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0 50.0 \$0.0 \$0.0 50.0 \$0.0	00 0 0 00 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
11 Crossovers ea \$80,782,844 0 \$0.0 12 Cut & Cover Double Track Tunnel km \$41,006,379 0 \$0.0 13 Trench Short km \$42,322,835 0 \$0.0 14 Trench Long km \$33,464,567 0 \$0.0 15 Mechanical & Electrical for Tunnels km \$33,464,567 0 \$0.0 16 Retaining Walls km \$3,749,214 0 \$0.0 17 Containment Walls km \$1,278,634 0 \$0.0 18 Single Track Cut and Cover Subway km \$25,628,987 0 \$0.0 19 Street Overcrossing HSR - (Urban) ea \$14,628,436 0 \$0.0 2 Street Overcrossing HSR - (Suburban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.0 50.0 \$0.0	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00
13 Trench Short	00 0 00 0 00 0.000 00 0 00 0 00 0 00 0	\$0.00 \$0.00 \$0.00
14 Trench Long	00 0 00 0.000 00 0 00 0 00 0 00 0	\$0.00 \$0.00
15 Mechanical & Electrical for Tunnels km \$1,645,723 0.000 \$9.000 16 Retaining Walls km \$3,749,214 0 \$0.000 17 Containment Walls km \$1,278,634 0 \$0.000 18 Single Track Cut and Cover Subway km \$25,628,987 0 \$0.000 19 Street Overcrossing HSR - (Urban) ea \$14,628,436 0 \$0.000 2 Street Overcrossing HSR - (Suburban) ea \$5,526,298 0 \$0.000 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.000 50.000	00 0.000 00 0 00 0 00 0 00 0	\$0.00
17 Containment Walls km \$1,278,634 0 \$0.0 \$0.0 \$0.0 \$1.8 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1.8 \$1.9 \$1	00 0	\$0.00
18 Single Track Cut and Cover Subway km \$25,528,987 0 \$0.00	0 0	
Grade Separations 1 Street Overcrossing HSR - (Urban) ea \$14,628,436 0 \$0.0 2 Street Overcrossing HSR - (Suburban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.0	00 0	\$0.00 \$0.00
2 Street Overcrossing HSR - (Suburban) ea \$5,526,298 0 \$0.0 3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.0		φο.οι
3 Street Overcrossing HSR - (Undeveloped) ea \$931,886 0 \$0.00		\$0.00
		\$0.00 \$0.00
		\$0.00
8 Street Undercrossing HSR - (Suburban) ea \$5,851,374 0 \$0.00		\$0.00
9 Street Undercrossing HSR - (Undeveloped) ea \$986,065 0 \$0.0 10 Street Bridging HSR Trench ea 0 \$0.0		\$0.00 \$0.00
10 Seet Uniquing 15th Heriti		\$3,337,450.57
Building Items		
1 Intermediate passenger stations - total (See Worksheet) ea		10.00
Segment 6 - Oakland Airport Intermediate Station ea \$26,979,000 0 \$0.0 Segment 7 - Union City Intermediate Station ea \$28,669,500 0 \$0.0		\$0.00 \$0.00
Segment 8 - Union City Intermediate Station ea \$28,669,500 0 \$0.0		\$0.00
Segment 9 - Diridon Intermediate Station ea \$93,437,500 0 \$0.0		\$0.00
Segment 13 - Los Banos Intermediate Station - At Grade ea \$28,715,500 0 \$0.00 2 Terminal Passenger Stations ea	0 0	\$0.00
Segment 4 - West Oakland Terminal Station ea \$335,903,500 0 \$0.0	0 0	\$0.00
Segment 5 - City CenterTerminal Station ea \$335,903,500 0 \$0.0		\$0.00
3 Parking - Structure space \$14,244 0 \$0.0 4 Parking - At Grade space \$2,042 0 \$0.0		\$0.00 \$0.00
Rail and Utility Relocation	0	φοιοι
1 Single Track Relocation (Temporary) km \$1,083,588 0 \$0.0		\$0.00
2 Single Track Relocation (Permanent) km \$1,083,588 0 \$0.0 3 Single Track Removal km \$54,000 0 \$0.0		\$0.00 \$0.00
3		\$0.00
5 Major Utility Relocations - Urban km \$579,719 0 \$0.0	0 0	\$0.00
6 Major Utility Relocations - Dense Suburban km \$406,345 0 \$0.0 7 Major Utility Relocations - Suburban km \$232,971 0 \$0.0		\$0.00 \$0.00
8 Major Utility Relocations - Undeveloped km \$11,919 21.344 \$254,409.0		\$128,730.24
Right-of-Way		
1 Right-of-Way Required for Each Segment Hectares \$3,499,093 0 \$0.0	00 0	\$0.00
Delise Ordinal Precures \$3,7493,093 U \$0.0 Urban Hectares \$2,332,729 0 \$0.0		\$0.00
Dense Suburban	0 0	\$0.00
Suburban Hectares \$408,227 0 \$0.0 Undeveloped Hectares \$291,591 65.056512 \$18,969,895.6		\$0.00 ¢0.509.710.20
Undeveloped Hectares \$291,591 65.056512 \$18,969,895.6 2 Right-of-Way Required for Passenger Station & Parking Facilities Hectares	32.9184	\$9,598,710.29
Dense Urban Hectares \$3,499,093 0 \$0.00		\$0.00
Urban Hectares \$2,332,729 0 \$0.0	0 0	\$0.00
Dense Suburban Hectares \$1,166,364 0 \$0.0 Suburban Hectares \$408,227 0 \$0.0		\$0.00 \$0.00
Undeveloped Hectares \$291,591 0 \$0.0		\$0.00
Environmental Mitigation		
Environmental Mitigation 3% of Line Cost \$2,849,18 Signals and Communication	W	\$1,481,369
1	10.800	\$7,782,327.92
2 Communications (w/Fiber Optic Backbone) km \$595,973 21.344 \$12,720,454.4	6 10.800	\$6,436,511.81
3 Wayside Protection System km \$57,213 21.344 \$1,221,163.6 Electrification Items	10.800	\$617,905.1
1 Traction Power Supply km \$368,420 21.344 \$7,863,553.6	7 10.8	\$3,978,934.58
2 Traction Power Distribution km \$686,995 21.344 \$14,663,214.7		\$7,419,542.7
Vehicle Costs		
1 Fleet size estimate vehicles \$0.0 Support Facility Costs	וטו	\$0.0
1 Facility cost breakdown ea \$0.0	00	\$0.0
Program Implementation Costs		
Program Implementation Costs 25.5% of Total Cost and Procurement \$29,781,95 Contingencies	6	\$15,417,053
Contingencies 25% of Total Construction Cost \$29,197,99	16	\$15,114,758
Total Construction \$94,972,90	1	\$49,378,952
Total Construction and Right of Way \$116,791,98: Grand Total \$175,771,93:		\$60,459,031 \$90,990,842

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTITIES				
				Revised !	Merced	Revised Merced		
	ment Cost			(Segmer		(Segmer		
Track	Double Track Section - Total	km		Quantities 11.089	Item Cost	Quantities 7.885	Item Cost	
2		km	\$846,282	10.689	\$9,045,909.46	7.685	\$6,503,678.0	
3		km km	\$1,600,459 \$1,600,459	0.400	\$640,183.70 \$0.00	0.200	\$320,091.8 \$0.0	
5		km	\$1,600,459	0.0	\$0.00	0.0	\$0.0	
6	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0	\$0.00	0	\$0.0 \$0.0	
7		km km	\$846,282 \$423,141	0	\$0.00 \$0.00	0	\$0.0	
9	Four-track construction or reconstruction work and Related Items	km	\$1,692,564	0	\$0.00	0	\$0.0	
	Site Preparation - Undeveloped	Hectares	\$10,294	33.799272	\$347,932.56	24.03348	\$247,402.6	
	Total Cut	m3	\$7.59	325800.72	\$2,471,235.91	234238.8	\$1,776,728.2	
	Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	325800.72 33.799272	\$2,471,235.91 \$232,565.45	234238.8 24.03348	\$1,776,728.2 \$165,369.1	
7	Security Fencing (Both Sides of R/W)	km	\$86,687	10.689	\$926,597.64	7.685	\$666,189.8	
Struc	Special Drainage Facilities tures/Tunnels/Walls	5% of E	Earthwork Cost		\$322,478		\$231,62	
	Standard Structure	km	\$11,702,749	0	\$0.00	0.1	\$1,170,274.8	
	High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
4	Waterway Crossing - Primary	km	\$24,606,000	0.4	\$9,842,400.00	0.1	\$2,460,600.0	
5	Waterway Crossing - Secondary (Irrigation/Canal Crossing) Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
6	Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0	\$0.00	0	\$0.0	
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
9	Double Track Mined (Soft Soil)	km	\$82,012,758	0	\$0.00	0	\$0.0	
	Seismic Chamber (Drill & Blast/Mined) Crossovers	ea ea	\$80,782,844 \$80,782,844	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Cut & Cover Double Track Tunnel	km	\$41,006,379	0	\$0.00	0	\$0.0	
	Trench Short Trench Long	km km	\$42,322,835	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Mechanical & Electrical for Tunnels	km	\$33,464,567 \$1,645,723	0.000	\$0.00	0.000	\$0.0	
	Retaining Walls Containment Walls	km	\$3,749,214	0	\$0.00	0	\$0.0	
	Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Street Overcrossing HSR - (Urban)		±4.4.620.426	0	+0.00	0	+0.0	
	Street Overcrossing HSR - (Orban)	ea ea	\$14,628,436 \$5,526,298	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0.00	1	\$931,885.5	
	Street Undercrossing HSR - (Urban) Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
9	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0.00	0	\$0.0	
	Street Bridging HSR Trench Minor crossing closures	ea ea	\$151,702	0 14	\$0.00 \$2,123,832.18	0 10	\$0.0 \$1,517,022.9	
Build	ing Items		1/	- 1	7-7-2-7-2-2-2	====	4-//	
1	Intermediate passenger stations - total (See Worksheet) Segment 6 - Oakland Airport Intermediate Station	ea	\$26,979,000	0	\$0.00	0	\$0.0	
	Segment 7 - Union City Intermediate Station	ea	\$28,669,500	0	\$0.00	0	\$0.0	
	Segment 8 - Union City Intermediate Station Segment 9 - Diridon Intermediate Station	ea	\$28,669,500 \$93,437,500	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Segment 13 - Los Banos Intermediate Station - At Grade	ea ea	\$28,715,500	0	\$0.00	0	\$0.0	
2	Terminal Passenger Stations	ea	+225 002 500		+0.00	0	+0.0	
	Segment 4 - West Oakland Terminal Station Segment 5 - City CenterTerminal Station	ea ea	\$335,903,500 \$335,903,500	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Parking - Structure	space	\$14,244	0	\$0.00	0	\$0.0	
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0.00	υĮ	\$0.0	
	Single Track Relocation (Temporary)	km	\$1,083,588	0	\$0.00	0	\$0.0	
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Major Utility Relocations - Dense Urban	km	\$758,511	0	\$0.00	0	\$0.0	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
7	Major Utility Relocations - Suburban	km	\$232,971	0	\$0.00	0	\$0.0	
8 Riaht	Major Utility Relocations - Undeveloped -of-Way	km	\$11,919	11.089	\$132,174.96	7.885	\$93,984.9	
	Right-of-Way Required for Each Segment							
+	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Dense Suburban	Hectares	\$1,166,364	0	\$0.00	0	\$0.0	
- -	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0 33.799272	\$0.00 \$9,855,564.67	0 24.03348	\$0.0 \$7,007,947.2	
2	Right-of-Way Required for Passenger Station & Parking Facilities	Hectares		33./992/2		24.05346		
1	Dense Urban	Hectares	\$3,499,093	0	\$0.00	0	\$0.0	
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0.00 \$0.00	0	\$0.0 \$0.0	
	Suburban	Hectares	\$408,227	0	\$0.00	0	\$0.0	
Envir	Undeveloped onmental Mitigation	Hectares	\$291,591	0	\$0.00	0	\$0.0	
Env	rironmental Mitigation	3% (of Line Cost		\$1,664,814		\$1,110,47	
	Ils and Communication Signaling (ATC)	km	\$720,586	11.089	\$7,990,577.25	7.885	\$5,681,819.9	
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	11.089	\$6,608,748.10	7.885	\$4,699,249.6	
	Wayside Protection System rification Items	km	\$57,213	11.089	\$634,439.82	7.885	\$451,127.9	
1	Traction Power Supply	km	\$368,420	11.089	\$4,085,407.92	7.885	\$2,904,990.6	
	Traction Power Distribution	km	\$686,995	11.089	\$7,618,084.18	7.885	\$5,416,953.1	
1	Fleet size estimate	vehicles			\$0.00		\$0.0	
Supp	ort Facility Costs				\$0.00		\$0.0	
	Facility cost breakdown Tam Implementation Costs	ea						
Pro	gram Implementation Costs	25.5% of Total	Cost and Procurement		\$17,088,616		\$11,509,20	
	ngencies ntingencies	25% of Tota	al Construction Cost		\$16,753,546		\$11,283,53	
Cor Total	Construction Construction and Right of Way				\$55,493,803 \$67,014,182		\$37,015,719 \$45,134,137	

Alignment Cost		COST ELEMENTS	UNIT	UNIT PRICE	QUANTI	TIFS
Alignment Cost		OOST ELEMENTO	0.1121	ONZI I RZCZ	QOARTI	
	A II:	word Cod				
2 Dock Prod. Science - Total						
2 Double Track Section—On Proceed Schorory	1	Double Track Section - Total			8.244	
4 Deckh Trad Seazer - In Trans of Seazer - In T						
Septiment Section Se			km			\$0.00
S Freight Coulde Track	5					\$0.00
2 Project Stript Track	6					
Settlement Set		Freight Single Track		\$423,141		\$0.00
1 Self Projection - Understood Projection Project	,		km	\$1,692,564	0	\$0.00
3 Total Pill			Hectares	\$10,294	25.127712	\$258,666.79
6 Londscape/Index Control 1972,098.5 25.17771 1978,098.5 25.07771 1978,098.5 25.06.5 27.071 1978,098.5 25.06.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27.071 27.08.5 27						\$1,836,607.54
2 Sourch Fereing (Beth States of NAY)						
	7	Security Fencing (Both Sides of R/W)	km	\$86,687		\$688,641.75
1 Stordard Structure			5% of I	Earthwork Cost		\$239,67
3 Josep Sens Structure	1	Standard Structure				\$3,510,824.63
4 Waterwoy Crossing - Permany						
5 Time Singue Track Drill & Black (cd Miles)						\$0.00
6 Two Strople Track TRM (c Niles) win 50,155,92 0 9.00 9.00 9.00 1 9.00						\$0.00
7 Two Soyle Track TRM wight Tube (~6 Mbes)						
9 Double Track Hrand (Cott Scale) 10 Septimic Character (Coll & Blast Pillines) es 8,800,72,844 10 Septimic Character (Coll & Blast Pillines) es 8,800,72,844 10 \$40,00 11 Crossovers es 8,800,72,844 10 \$40,00 11 Error turg es 8,800,72,844 10 \$40,00 11 Error turg es 8,800,72,844 10 \$40,00 11 Error turg es 8,800,72,844 10 \$40,00 10 Error turget es 8,800,740,740 10 Error turget es 8,800,740 1						\$0.00
10 Semic Chamber (Diff. 8 Beachimen)						\$0.00
11 Crossovers						
13 Trench Short	11	Crossovers	ea	\$80,782,844	0	\$0.00
14 Transch Long						
16 Retaining Wells						\$0.00
12 Containment Walls				\$1,645,723		\$0.00
18 Single Track Cut and Cover Schewoy						
1 Street Overcossing HSR - (Osharbern)	18	Single Track Cut and Cover Subway				\$0.00
2 Street Overcrossing HSR - (Violeveloped) 3 Street Overcrossing HSR - (Violeveloped) 6 a \$931,886 2 \$1,863,771 7 Street Undercrossing HSR - (Violan) 6 a \$15,276,589 0 \$0 \$50.00 8 Street Undercrossing HSR - (Violan) 9 Street Undercrossing HSR - (Violand) 9 Street Undercrossing HSR - (Violand) 9 Street Undercrossing HSR - (Violand) 1 Street Bridging HSR Treind) 6 a \$3,581,747 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$3,581,747 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$3,581,747 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$3,581,747 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$35,578,589 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$35,578,580 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 6 a \$35,578,000 0 \$0.00 9 Street Undercrossing HSR - (Violanderloped) 7 Street Undercrossing HSR - (Violanderloped) 7 Street Undercrossing HSR - (Violanderloped) 7 Street Undercrossing HSR - (Violanderloped) 8 Street Undercrossing HSR - (Violanderloped) 9			93	¢14 629 436	0	ėn no
7 Street Undercrossing 18% (Suburban)		Street Overcrossing HSR - (Suburban)			0	\$0.00
8 Street Undercrossing HSR* (Columbary)						\$1,863,771.10
9 Street Indigercrossing JSR- (Undeveloped) ea \$986,065 0 \$9.00 12 Ninor crossing dosures ea \$151,702 11 \$1,668,755.2* 12 Intermediate passenger dations - total (See Worksheet) ea \$151,702 11 \$1,668,755.2* 13 Intermediate passenger dations - total (See Worksheet) ea \$26,979,000 0 \$0.00 14 Segment 7 - Union City Intermediate Station ea \$26,979,000 0 \$0.00 15 Segment 7 - Union City Intermediate Station ea \$28,669,500 0 \$0.00 15 Segment 3 - Union City Intermediate Station ea \$28,669,500 0 \$0.00 16 Segment 3 - Union City Intermediate Station ea \$28,669,500 0 \$0.00 16 Segment 3 - Union City Intermediate Station ea \$28,679,500 0 \$0.00 17 Segment 3 - Union City Intermediate Station ea \$28,775,500 0 \$0.00 18 Segment 3 - Union City Intermediate Station ea \$28,775,500 0 \$0.00 19 Segment 3 - City Center Terminal Station ea \$335,903,500 0 \$0.00 20 Segment 5 - City Center Terminal Station ea \$335,903,500 0 \$0.00 3 Parking - Structure \$9.00 \$0.00 4 Parking - Structure \$9.00 \$0.00 4 Parking - Structure \$9.00 \$0.00 5 Segment 4 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Center Terminal Station \$9.00 5 Segment 5 - City Cen						
21 Minor crossing dosures ea \$151,702 11 \$1,668,725,22		Street Undercrossing HSR - (Undeveloped)				\$0.00
Support Supp				¢151 702		
Segment 6 - Oakland Airport Intermediate Station ea \$26,979,000 0 \$0.00			ea	\$151,702	11	\$1,000,723.23
Segment 7 - Union City Intermediate Station ea \$28,669,500 0 \$0.00	1					
Segment 8 - Union City Intermediate Station ea \$28,669,500 0 \$0.00						
Segment 13 - Los Banos Intermediate Station - At Grade ea \$28,15,500 0 \$0.00				\$28,669,500	0	\$0.00
2 Terminal Passenger Stations						
Segment 5 - City Center Ferminal Station ea \$335,903,500 0 \$0.00 4 Parking - At Grade \$pace \$2,042 0 \$5.00 5 Parking - At Grade \$pace \$2,042 0 \$5.00 8 Parking - At Grade \$pace \$2,042 0 \$5.00 1 Single Track Relocation (Temporary) km \$1,083,588 0 \$5.00 2 Single Track Relocation (Temporary) km \$1,083,588 0 \$5.00 3 Single Track Relocation (Temporary) km \$1,083,588 0 \$5.00 4 Major Utility Relocations - Dense Urban km \$54,000 0 \$5.00 5 Major Utility Relocations - Urban km \$579,511 0 \$5.00 6 Major Utility Relocations - Urban km \$579,511 0 \$5.00 6 Major Utility Relocations - Urban km \$406,345 0 \$5.00 6 Major Utility Relocations - Suburban km \$406,345 0 \$5.00 8 Major Utility Relocations - Urban km \$232,971 0 \$5.00 8 Major Utility Relocations - Undeveloped km \$11,919 8.244 \$98,264.00 9 Major Utility Relocations - Undeveloped km \$11,919 8.244 \$98,264.00 1 Right-of-Way Required for Each Segment Hectares \$3,499,093 0 \$5.00 Urban Hectares \$4,165,644 0 \$5.00 1 Dense Suburban Hectares \$4,165,644 0 \$5.00 2 Dense Suburban Hectares \$4,165,644 0 \$5.00 3 Suburban Hectares \$3,499,093 0 \$5.00 4 Urban Hectares \$4,165,644 0 \$5.00 5 Dense Suburban Hectares \$4,165,644 0 \$5.00 6 Dense Suburban Hectares \$4,165,644 0 \$5.00 6 Dense Suburban Hectares \$4,165,644 0 \$5.00 6 Dense Suburban Hectares \$4,165,644 0 \$5.00 7 Suburban Hectares \$4,165,644 0 \$5.00 8 Suburban Hectares \$4,165,644 0 \$5.00 9 Suburban Hectares \$4,165,644 0 \$5.00 10 Suburban Hectares \$4,165,644 0 \$5.00 11 Signaliny (Alth	2			\$20,715,500	0	\$0.00
3 Parking - Structure						\$0.00
A Parking - At Grade Space \$2,042 0 \$0.00	3					
1 Single Track Relocation (Temporary)	4	Parking - At Grade				\$0.00
2 Single Track Relocation (Permanent)			km	\$1.083.588	n	\$0.00
4 Major Utility Relocations - Dense Urban km \$758,511 0 \$9.00.						\$0.00
S Major Utility Relocations - Urban km \$579,719 0 \$0.00	3					\$0.00
6 Major Utility Relocations - Dense Suburban km \$406,345 0 \$0.00 7 Major Utility Relocations - Suburban km \$232,971 0 \$0.00 8 Major Utility Relocations - Undeveloped km \$11,919 8.244 \$98,264.00 1 Right-Of-Way Suburban Rectares S.1,990,93 0 \$0.00 1 Dense Urban Hectares \$3,499,093 0 \$0.00 1 Urban Hectares \$2,332,729 0 \$0.00 2 Dense Urban Hectares \$1,166,364 0 \$0.00 3 Suburban Hectares \$408,227 0 \$0.00 4 Urban Hectares \$408,227 0 \$0.00 5 Suburban Hectares \$409,227 0 \$0.00 6 Urban Hectares \$409,227 0 \$0.00 9 Suburban Hectares \$2,332,729 0 \$0.00 1 Urban Hectares \$409,227 0 \$0.00 1 Urban Hectares \$2,332,729 0 \$0.00 1 Urban Hectares \$3,499,093 0 \$0.00 2 Dense Urban Hectares \$3,499,093 0 \$0.00 3 Urban Hectares \$3,499,093 0 \$0.00 4 Urban Hectares \$3,499,093 0 \$0.00 5 Urban Hectares \$3,499,093 0 \$0.00 5 Urban Hectares \$1,166,364 0 \$0.00 6 Dense Suburban Hectares \$1,166,364 0 \$0.00 6 Dense Suburban Hectares \$1,166,364 0 \$0.00 9 Urban Hectares \$1,166,364 0 \$0.00 1 Signalis and Communication Hectares \$2,91,591 0 \$0.00 1 Signalis and Communication Si						
R Major Utility Relocations - Undeveloped km \$11,919 8.244 \$98,264.08 Right-of-Way	6	Major Utility Relocations - Dense Suburban		\$406,345	0	\$0.00
1 Right-of-Way 1 Right-of-Way Required for Each Segment Hectares \$3,499,093 0 \$0.00						
Dense Urban	Right	:-of-Way	KIII	\$11,919	0.244	\$90,204.00
Urban	1		11	13 /00 00-		
Dense Suburban	\vdash					\$0.00 \$0.00
Undeveloped Hectares \$291,591 25,127712 \$7,327,015.52 Right-of-Way Required for Passenger Station & Parking Facilities Hectares \$3,499,093 0 \$0.00 Urban			Hectares	\$1,166,364	0	\$0.00
2 Right-of-Way Required for Passenger Station & Parking Facilities Hectares \$3,499,093 0 \$0.00						
Urban	2			\$251,351	23.127712	\$7,327,013.32
Dense Suburban	H		Hectares			\$0.00
Suburban Hectares \$408,227 0 \$0.00 Undeveloped Hectares \$291,591 0 \$0.00 Environmental Mitigation Signals and Communication Environmental Mitigation 3% of Line Cost \$1,182,113 Signals and Communication Signals and Communication Signals and Communication Signals and Signals	$\vdash\vdash$					
Environmental Mitigation 3% of Line Cost \$1,182,117 \$15gnals and Communication \$1,182,117 \$15gnals and Communication \$1 \$15gnaling (ATC) \$15gnali		Suburban				\$0.00
Environmental Mitigation 3% of Line Cost \$1,182,115	Envir		Hectares	\$291,591	0	\$0.00
1 Signaling (ATC) km \$720,586 8.244 \$5,940,510.3; 2 Communications (w/Fiber Optic Backbone) km \$595,973 8.244 \$4,913,204.0; 3 Wayside Protection System km \$57,213 8.244 \$4,71,667.5; Electrification Items	Env	vironmental Mitigation	3%	of Line Cost		\$1,182,117
2 Communications (w/Fiber Optic Backbone)			1	#730 F01	0.344	#F 040 F40 21
3 Wayside Protection System km \$57,213 8.244 \$471,667.55						\$5,940,510.31 \$4,913,204.02
1 Traction Power Supply km \$368,420 8.244 \$3,037,253.35 2 Traction Power Distribution km \$686,995 8.244 \$5,663,584.27 3 Fleet size estimate vehicle	3	Wayside Protection System				\$471,667.59
2 Traction Power Distribution			- km	¢368 430	9 244	\$3 037 253 20
Vehicle Costs	2	Traction Power Distribution				\$5,037,253.39 \$5,663,584.27
1 Facility cost breakdown	Vehicle	e Costs			1	
1 Facility cost breakdown	Supp	rieet size estimate ort Facility Costs	vehicles			\$0.00
Program Implementation Costs 25.5% of Total Cost and Procurement \$12,217,82: Contingencies 25% of Total Construction Cost \$11,978,25* Total Construction \$39,403,901 Total Construction and Right of Way \$47,913,033	1	Facility cost breakdown	ea			\$0.00
Contingencies 25% of Total Construction Cost \$11,978,251 Total Construction \$39,403,901 Total Construction and Right of Way \$47,913,033			25 E0/ of T-1-1	Cost and Presument		£12.217.022
Contingencies 25% of Total Construction Cost \$11,978,25f Total Construction \$39,403,901 Total Construction and Right of Way \$47,913,033			25.5% UI 10tal	Cost and Procurement		\$12,217,823
Total Construction and Right of Way \$47,913,033	Cor	ntingencies	25% of Tota	al Construction Cost		\$11,978,258
						\$72,109,115

Capital Cost Estimate CAHSRA Program EIR/EIS Bay Area - Merced Morgan Hill to Gilroy Segment

	COST ELEMENTS	UNIT	UNIT PRICE		QUANT	ITIES	
Aligr	nment Cost			Segment 11	(Morgan Hill)	Segment 12 (
				9+!		22+	
Fraci	:k			22+ Quantities	Item Cost	47+	Item Cost
_	Double Track Section - Total	km		12.8	110111 0001	25.4	Ttom Cost
2		km	\$846,282	7.0	\$5,923,975	16.200	\$13,709,77
3	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	5.8	\$9,282,664 \$0	6.500 2.700	\$10,402,98 \$4,321,24
5		km	\$1,600,459	0.0	\$0	0.0	\$4,321,24
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.0	\$0	0.0	\$
6		km	\$846,282	0.0	\$0	0.0	
7	7 Freight Single Track 9 Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.0	\$0 \$0	0.0	
	hwork and Related Items	KIII	\$1,072,304	0.0	40	0.0	,
1	1 Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	0.0	
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	58100.000 0.000	\$440,695 \$0	0.0 642,475	\$4,873,24
	6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.0	\$4,073,24
	7 Security Fencing (Both Sides of R/W)	km	\$86,687	7.000	\$606,809	16.200	\$1,404,33
	B Special Drainage Facilities	5% of	Earthwork Cost		\$52,375		\$313,83
	1 Standard Structure	km	\$11,702,749	0	\$0	0.0	
	2 High Structure	km	\$14,043,299	5.8	\$81,451,131	5.2	\$73,025,15
	3 Long Span Structure	km	\$32,020,021	0	\$0	1.0	\$32,020,02
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0	\$0 \$0	0.3	\$7,381,80 \$
5	5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0	\$0	0	
6	6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0	\$0	2.700	\$127,606,29
	7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0	\$0 \$0	0	<u> </u>
	9 Double Track Mined (Soft Soil)	km	\$71,355,733	0	\$0	0	3
10	0 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0	0	
	1 Crossovers	ea	\$80,782,844	0	\$0	0	
	2 Cut & Cover Double Track Tunnel 3 Trench Short	km km	\$41,006,379 \$42,322,835	0	\$0 \$0	0	5
	4 Trench Long	km	\$33,464,567	0	\$0	0	3
	5 Mechanical & Electrical for Tunnels	km	\$1,645,723	0	\$0	2.700	\$4,443,45
	6 Retaining Walls 7 Containment Walls	km	\$3,749,214 \$1,278,634	0	\$0	0	<u> </u>
	8 Single Track Cut and Cover Subway	km km	\$1,278,634	0	\$0 \$0	0	3
Grad	de Separations						
	1 Street Overcrossing HSR - (Urban) 2 Street Overcrossing HSR - (Suburban)	ea	\$14,628,436	0	\$0	0	
	3 Street Overcrossing HSR - (Undeveloped)	ea	\$5,526,298 \$931,886	2	\$11,052,596 \$2,795,657	7	\$6,523,19
7		ea	\$15,278,589	0	\$0	0	\$5,525,11
	8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	5
	9 Street Undercrossing HSR - (Undeveloped) 0 Street Bridging HSR Trench	ea	\$986,065	0	\$0 \$0	0	<u> </u>
	1 Minor crossing closures	ea	\$151,702	0	\$0	0	
Buildi	ing Items						
1	1 Intermediate Passenger Stations	ea				1	
	Segment 12 - Gilroy Station Segment 14 - Morgan Hill Station (Aerial)	ea	\$75,624,000 \$166,094,500	0	\$0 \$0	1 0	\$75,624,00 \$
2	2 Terminal Passenger Stations	ea	\$100,074,300	0	40	0	*
	3 Parking - Structure	space	\$14,244	0	\$0	916	\$13,047,50
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	0	
	1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	5
2	2 Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0	0.000	9
	3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	
	4 Major Utility Relocations - Dense Urban 5 Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0.000	\$0 \$0	0.000	
6	6 Major Utility Relocations - Dense Suburban	km	\$406,345	7.680	\$3,120,733	6.810	\$2,767,21
	7 Major Utility Relocations - Suburban	km	\$232,971	5.120	\$1,192,814	6.810	\$1,586,53
	Major Utility Relocations - Undeveloped nt-of-Way	l km	\$11,919	0.000	\$0	9.080	\$108,22
	Right-of-Way Required for Each Segment						
1	Dense Urban	Hectares	\$3,499,093	0.0	\$0	0.0	5
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.0	\$0 \$0	0.0	
+	Suburban Suburban	Hectares	\$1,166,364	0.0	\$0	5.0	\$2,041,13
╧	Undeveloped	Hectares	\$291,591	0.0	\$0	25.9	\$7,552,20
2	2 Right-of-Way Required for Passenger Station & Parking Facilities	Hectares					
+	Dense Urban Urban	Hectares	\$3,499,093 \$2,332,729	0.0	\$0 \$0	0.0	\$
	Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.0	\$0 \$0	0.0	
	Suburban	Hectares	\$408,227	0.0	\$0	0.7	\$285,75
in di	Undeveloped	Hectares	\$291,591	0.0	\$0	0.0	
	ironmental Mitigation nvironmental Mitigation	3%	of Line Cost		\$4,410,391	T	\$13,225,80
Sign	nals and Communication	570			31,110,071		3.0,223,00
	1 Signaling (ATC)	km	\$720,586	12.800	\$9,223,500	25.400	\$18,302,88
	Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	12.800 12.800	\$7,628,458 \$732,332	25.400 25.400	\$15,137,72 \$1,453.22
	trification Items	NIII	\$57,213	12.800	\$13Z,33Z	25.400	\$1,453,2
1	1 Traction Power Supply	km	\$368,420	12.800	\$4,715,774	25.400	\$9,357,86
	2 Traction Power Distribution icle Costs	km	\$686,995	12.800	\$8,793,532	25.400	\$17,449,6
	1 Fleet size estimate	vehicles			\$0	T	
Supp	port Facility Costs	VCI IICICS			30		
	1 Facility cost breakdown	ea			\$0		
	gram Implementation Costs	25 59/ of Tet-	Cost and Proguramost		\$20 412 07/	1	\$110 211 1
	rogram Implementation Costs tingencies	∠5.5% 0T 10tal	Cost and Procurement		\$38,612,976		\$118,311,10
	ontingencies	25% of Tot	al Construction Cost		\$37,855,859		\$115,991,2
					\$147,013,045		\$440,860,20
Tota	al Construction al Construction and Right of Way				\$151,423,437		\$463,965,11

Capital Cost Estimate CAHSRA Program EIR/EIS Bay Area - Merced Morgan Hill to Gilroy Segment

	COST ELEMENTS	UNIT	UNIT PRICE	QUANT	TITIES
Aligr	nment Cost			Segment 14 (0 22+	
T				46+83	31.78
Trac	Double Track Section - Total	km	1	Quantities 24.5	Item Cost
2		km	\$846,282	18.0	\$15,259,972.8
3 4		km km	\$1,600,459 \$1,600,459	1.3 5.2	\$2,080,597.0 \$8,322,388.1
5	Double Track Section - In Trench	km	\$1,600,459	0.0	\$0.0
6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.0	\$0.0 \$0.0
7	Freight Single Track	km	\$423,141	0.0	\$0.0
Eartl	Four-track construction or reconstruction nwork and Related Items	km	\$1,692,564	0.0	\$0.0
1	Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0.0
3	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	133,849 925,724	\$1,015,260.0 \$7,021,722.9
6		Hectares	\$6,881	0.000	\$0.0
7 8		km 5% of	\$86,687 Earthwork Cost	18.032	\$1,563,121.4 \$480,005
	ctures/Tunnels/Walls Standard Structure	km	\$11,702,749	0	\$0.0
2		km	\$14,043,299	0.5	\$7,021,649.3
	Long Span Structure	km	\$32,020,021	0.5	\$16,010,010.4
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.3	\$7,381,800.0 \$0.0
5		km	\$63,942,150	0	\$0.0
- 6 7		km km	\$47,261,589 \$67,185,592	5.2 0	\$245,760,263.6 \$0.0
	Double Track Drill & Blast	km	\$71,355,733	0	\$0.0
10		km ea	\$82,012,758 \$80,782,844	0	\$0.0 \$0.0
1	1 Crossovers	ea	\$80,782,844	0	\$0.0
13	2 Cut & Cover Double Track Tunnel 3 Trench Short	km km	\$41,006,379 \$42,322,835	0	\$0.0 \$0.0
14	Trench Long	km	\$33,464,567	0	\$0.0
15	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	5.2 0	\$8,557,757.9 \$0.0
17	Containment Walls	km	\$1,278,634	0	\$0.0
Grad	B Single Track Cut and Cover Subway e Separations	km	\$25,628,987	0	\$0.0
1		ea	\$14,628,436	0	\$0
3		ea ea	\$5,526,298 \$931,886	0	\$0 \$3,727,542
7		ea	\$15,278,589	0	\$0
9	9 1 1	ea ea	\$5,851,374 \$986,065	0	\$0 \$2,958,195
10		ea		0	\$0
Puildi 2	Minor crossing closures ng Items	ea	\$151,702	0	\$0
	Intermediate Passenger Stations	ea		1	
	Segment 12 - Gilroy Station Segment 14 - Morgan Hill Station (Aerial)	ea ea	\$75,624,000 \$166,094,500	0	\$0.0 \$166,094,500.0
2	Terminal Passenger Stations	ea		0	
4	Parking - Structure Parking - At Grade	space space	\$14,244 \$2,042	916 0	\$13,047,504.0 \$0.0
	and Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0.0
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588	0.000	\$0.0
3		km	\$54,000	0.000	\$0.0
5		km km	\$758,511 \$579,719	0.000	\$0.0 \$0.0
	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0.0
7 8		km km	\$232,971 \$11.919	3.866 15.465	\$900,750.3 \$184.339.6
	t-of-Way				,
1	Right-of-Way Required for Each Segment Dense Urban	Hectares	\$3,499,093	0.0	\$0.0
	Urban	Hectares	\$2,332,729	0.0	\$0.0
-	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.0 13.0	\$0.0 \$5,306,956.8
	Undeveloped	Hectares	\$291,591	70.0	\$20,411,372.4
2	Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares Hectares	\$3,499,093	0.0	\$0.0
	Urban	Hectares	\$2,332,729	0.0	\$0.0
+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.7 0.0	\$816,455.1 \$0.0
F	Undeveloped	Hectares	\$291,591	0.0	\$0.0
	ronmental Mitigation vironmental Mitigation	3%	of Line Cost		\$17,009,390
Sign	als and Communication			0	
	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	24.532 24.532	\$17,677,255.2 \$14,620,286.3
3	Wayside Protection System	km	\$57,213	24.532	\$1,403,547.5
	Traction Power Supply	km	\$368,420	24.532	\$9,037,995.2
2	Traction Power Distribution cle Costs	km	\$686,995	24.532	\$16,853,202.7
1	Fleet size estimate	vehicles			\$0
	Poort Facility Costs Facility cost breakdown	ea			\$0
		64			\$(
Prog	ram Implementation Costs				
Prog	ram Implementation Costs ogram Implementation Costs	25.5% of Total	Cost and Procurement		\$155,683,579
Prog Pro Cont	ram Implementation Costs ogram Implementation Costs ingencies ntingencies		Cost and Procurement al Construction Cost		\$152,630,960
Prog Pro Cont Co Tota	ram Implementation Costs ogram Implementation Costs ingencies				

		COCT EL EMENTS		ountain Crossing		OHANT	ITIEC	
Aliar	nn	COST ELEMENTS nent Cost	UNIT	UNIT PRICE	Segment 12 to SR	QUANTI	SR-152 Alignr	nont Ontion
Trac		ient cost			Quantities	Item Cost	Quantities	Item Cost
	- 1	Oouble Track Section - Total	km		3.52	Item oost	33.81	rtem oost
2	_	Double Track Section - At-Grade	km	\$846,282	3.52	\$2,980,606	19.76	\$16,720,830
3		Double Track Section - On Structure	km	\$1,600,459	0.00	\$0	0.20	\$320,092
5	4	Double Track Section - In Tunnel or Subway Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.00	\$0 \$0	13.85	\$22,166,384 \$0
	1	Single Track Sections - In Tunnel or Subway	km	\$1,000,437	0	\$0	0	\$0
6		Freight Double Track	km	\$846,282	0	\$0	0	\$0
7	-	Freight Single Track	km	\$423,141	0	\$0	0	\$0
_) hv	Four-track construction or reconstruction vork and Related Items	km	\$1,692,564	0	\$0	0	\$0
1		Site Preparation - Undeveloped	Hectares	\$10,294	33.43	\$344,099	286.79	\$2,952,277
	2 7	Total Cut	m3	\$7.59	1341914	\$10,178,572	45302029	\$343,621,099
		Total Fill	m3	\$7.59	2032203	\$15,414,490	14248569	\$108,077,037
		andscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	33.43 3.52	\$230,003 \$305,312	286.79 19.76	\$1,973,364 \$1,712,761
		Special Drainage Facilities		Earthwork Cost	0.02	\$1,323,624	17.70	\$22,916,827
		ures/Tunnels/Walls					<u>, </u>	
		Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	0	\$0 \$0	0	\$C \$C
		ong Span Structure	km	\$32,020,021	0	\$0	0.100	\$3,202,002
	4 ۱	Vaterway Crossing - Primary	km	\$24,606,000	0	\$0	0.100	\$2,460,600
-		Vaterway Crossing - Secondary (Irrigation/Canal Crossing) Fwin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0	\$0 \$0	0	\$C
		win Single Track Dilli & Biast (<6 Miles)	km	\$47,261,589	0	\$0	13.850	\$654,573,693
7	7	win Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0	0	\$0
		Oouble Track Drill & Blast	km	\$71,355,733	0	\$0	0	\$0
		Oouble Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0	\$0 \$0	0	\$C \$C
11	1 (Crossovers	ea	\$80,782,844	0	\$0	0	\$0
1:	2 (Cut & Cover Double Track Tunnel	km	\$41,006,379	0	\$0	0	\$0
		French Short French Long	km	\$42,322,835	0	\$0	0	\$0
		rench Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.00	\$0 \$0	13.850	\$0 \$22,793,283
10	6 F	Retaining Walls	km	\$3,749,214	0	\$0	0	\$0
		Containment Walls Single Track Cut and Cover Subway	km	\$1,278,634	0	\$0 \$0	0	\$0
		Separations	km	\$25,628,987	0	\$0	U	\$0
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0
-	_	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	\$0
	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	\$0
7	7 5	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
8	3 5	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0
-	_	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$0
_	_	Street Bridging HSR Trench	ea		0	\$0	0	\$0
_	_	Minor crossing closures	ea	\$151,702	0	\$0	0	\$0
		ng Items ntermediate Passenger Stations	ea	1				
2	2	Ferminal Passenger Stations	ea					
		Parking - Structure	space	\$14,244	0	\$0	0	\$0
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		Single Track Relocation (Temporary)	km	\$1,083,588	0	\$0	0	\$0
2	2 9	Single Track Relocation (Permanent)	km	\$1,083,588	0	\$0	0	\$0
		Single Track Removal	km	\$54,000	0	\$0	0	\$0
		Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0	\$0 \$0	0	\$C \$C
6	5 N	Major Utility Relocations - Dense Suburban	km	\$406,345	0	\$0	0	\$0
		Major Utility Relocations - Suburban	km	\$232,971	0	\$0	0	\$0
		Major Utility Relocations - Undeveloped of-Wav	km	\$11,919	3.522	\$41,980	19.958	\$237,889
		Right-of-Way Required for Each Segment						
	ľ	Dense Urban	Hectares	\$3,499,093	0	\$0	0	\$0
$\vdash \vdash$	4	Urban Pagas Suburban	Hectares	\$2,332,729	0	\$0 \$0	0	\$0
$\vdash \vdash$	+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0	\$0 \$0	0	\$C \$C
	1	Undeveloped	Hectares	\$291,591	10.735056	\$3,130,246	103.046784	\$30,047,518
2	2 F	Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Llooto	#3 400 000		**		**
\vdash	\dashv	Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0	\$0 \$0	0	\$C \$C
		Dense Suburban	Hectares	\$1,166,364	0	\$0	0	\$0
$\vdash \vdash$	4	Suburban	Hectares	\$408,227 \$201,501	0	\$0	0	\$0 \$0
Fnvi	ro	Undeveloped nmental Mitigation	Hectares	\$291,591	0	\$0	0	\$0
		onmental Mitigation	3%	of Line Cost	N/A	\$1,181,228	N/A	\$38,575,623
Sign	al	s and Communication			· · · · · · · · · · · · · · · · · · ·			
		Signaling (ATC)	km	\$720,586	3.52	\$2,537,904	33.808	\$24,361,569
		Communications (w/Fiber Optic Backbone) Vayside Protection System	km km	\$595,973 \$57,213	3.52 3.52	\$2,099,018 \$201,506	33.808 33.808	\$20,148,666 \$1,934,272
		fication Items	Kill	\$31,213	5.52	Ψ201,300	33.000	ψ1,7J4,272
1	1	raction Power Supply	km	\$368,420	3.52	\$1,297,575	33.808	\$12,455,539
		Traction Power Distribution	km	\$686,995	3.52	\$2,419,595	33.808	\$23,225,917
		e Costs Teet size estimate	vahislas	4400000		0		\$C
		rt Facility Costs	vehicles	4400000		0		\$0
		acility cost breakdown	ea	0		0		\$0
Prog	jra	m Implementation Costs						
		ram Implementation Costs	25.5% of Total	Cost and Procurement		\$11,139,868		\$345,391,697
		gencies	2E0/ of T-1	A Construction Cost		\$10,921,439		¢220 (10 210
		ngencies Construction	20% OF 10ta	al Construction Cost		\$39,374,282		\$338,619,310 \$1,285,854,100
		Construction and Right of Way				\$43,685,757		\$1,354,477,241
		Total				\$65,747,064		\$2,038,488,248
						,,004		. = , = = = , = = , = = ,

				untain Crossing				
		COST ELEMENTS	UNIT	UNIT PRICE		QUANTI		
		nent Cost			Northern Alignr		Minimize Tur	
rac					Quantities	Item Cost	Quantities	Item Cost
	2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	72.68 37.64	\$31,857,564	71.46 40.93	\$34,640,65
	3	Double Track Section - On Structure	km	\$1,600,459	4.95	\$7,922,273	4.65	\$7,442,13
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	30.08	\$48,144,788	25.88	\$41,417,08
!	5	Double Track Section - In Trench	km	\$1,600,459	0	\$0	0	\$
		Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0	\$0	0	\$
	6	Freight Double Track	km	\$846,282	0	\$0	0	\$
	7	Freight Single Track Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0	\$0 \$0	0	<u> </u>
		vork and Related Items	KIII	\$1,072,304	O ₁	30	O ₁	Ψ
		Site Preparation - Undeveloped	Hectares	\$10,294	405.658	\$4,175,881	499.032	\$5,137,07
	2	Total Cut	m3	\$7.59	45567510	\$345,634,800	66869321	\$507,211,48
		Total Fill	m3	\$7.59	15662449	\$118,801,473	28158449	\$213,585,07
		Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	405.658 37.64	\$2,791,247 \$3,263,259	499.032 40.93	\$3,433,72 \$3,548,33
		Special Drainage Facilities		arthwork Cost	37.04	\$23,733,333	40.73	\$36,645,78
		ures/Tunnels/Walls						
		Standard Structure	km	\$11,702,749	0.200	\$2,340,550	0.100	\$1,170,27
		High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	4.000 0.500	\$56,173,194 \$16,010,010	4.100 0.250	\$57,577,52 \$8,005,00
		Waterway Crossing - Primary	km	\$24,606,000	0.250	\$6,151,500	0.200	\$4,921,20
		Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	\$ 1,721,25
	5	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0	\$0	0.000	\$
		Twin Single Track TBM (<6 Miles)	km	\$47,261,589	30.082	\$1,421,716,416	25.878	\$1,223,047,29
		Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0.000	\$0 \$0	0.000	<u> </u>
		Double Track Mined (Soft Soil)	km	\$82,012,758	0	\$0	0	
		Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0	0	9
1	11 (Crossovers	ea	\$80,782,844	0	\$0	0	9
		Cut & Cover Double Track Tunnel	km	\$41,006,379	0	\$0	0	\$
		Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	0	\$0 \$0	0	\$
		Mechanical & Electrical for Tunnels	km	\$1,645,723	30.082	\$49,506,396	25.878	\$42,588,42
1	16	Retaining Walls	km	\$3,749,214	0	\$0	0	\$
		Containment Walls	km	\$1,278,634	0	\$0	0	\$
		Single Track Cut and Cover Subway	km	\$25,628,987	0	\$0	0	
		Separations Street Output Street (University Street)		444 (00 40)		40		
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	
_	_	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	
		Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	
_	_	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$
_	_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$
_	_	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$
_	_	Street Bridging HSR Trench	ea	4454 700	0	\$0	0	\$
_	_	Minor crossing closures	ea	\$151,702	0	\$0	0	\$
		Intermediate Passenger Stations	ea					
		Terminal Passenger Stations	ea					
		Parking - Structure	space	\$14,244	0	\$0	0	\$
		Parking - At Grade	space	\$2,042	0	\$0	0	\$
Rall	ar	nd Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	0	\$0	0	1
		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km	\$1,083,588	0	\$0	0	3
		Single Track Removal	km	\$54,000	0	\$0	0	
		Major Utility Relocations - Dense Urban	km	\$758,511	0	\$0	0	9
		Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km	\$579,719 \$406,345	0	\$0 \$0	0	\$
		Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$232,971	0	\$0	0	
-	8	Major Utility Relocations - Undeveloped	km	\$11,919	42.594	\$507,699	45.583	\$543,32
		of-Way			<u> </u>	<u> </u>	<u> </u>	
	1	Right-of-Way Required for Each Segment						
+	4	Dense Urban	Hectares	\$3,499,093	0	\$0	0	
+	+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0 \$0	0	
+	7	Suburban Suburban	Hectares	\$408,227	0	\$0	0	
		Undeveloped	Hectares	\$291,591	221.516448	\$64,592,210	217.813128	\$63,512,35
	2	Right-of-Way Required for Passenger Station & Parking Facilities	114-	#0 100 05		4.5	_	
+	-	Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	0	\$0 \$0	0	
\dagger	7	Dense Suburban	Hectares	\$1,166,364	0	\$0	0	
		Suburban	Hectares	\$408,227	0	\$0	0	9
		Undeveloped	Hectares	\$291,591	0	\$0	0	
		nmental Mitigation ronmental Mitigation	20/	of Line Cost	N/A	¢40.4E0.220	N/A	\$70.00F 10
		onmental Mitigation s and Communication	3% (of Line Cost	N/A	\$69,458,220	N/A	\$70,935,19
		Signaling (ATC)	km	\$720,586	72.676	\$52,369,302	71.461	\$51,493,79
	2	Communications (w/Fiber Optic Backbone)	km	\$595,973	72.676	\$43,312,957	71.461	\$42,588,84
	3	Wayside Protection System	km	\$57,213	72.676	\$4,158,044	71.461	\$4,088,53
		fication Items						
		Traction Power Supply Traction Power Distribution	km	\$368,420	72.676	\$26,775,282	71.461	\$26,327,65
		Traction Power Distribution e Costs	km	\$686,995	72.676	\$49,928,026	71.461	\$49,093,32
		Fleet size estimate	vehicles	44000000	T	\$0		4
		rt Facility Costs	Vernetes	++000000		\$ 0		
		Facility cost breakdown	ea	0		\$0		
roç	gra	m Implementation Costs						
		ram Implementation Costs	25.5% of Total	Cost and Procurement		\$624,577,728		\$637,233,29
		gencies						
		ingencies	25% of Tota	I Construction Cost		\$612,331,106		\$624,738,52
	4I (Construction				\$2,315,273,994		\$2,364,506,54
						AO 440 004 401		40 400 0= 4 ==
ota	al (Construction and Right of Way Total				\$2,449,324,424 \$3,686,233,259		\$2,498,954,09 \$3,760,925,91

Aligi Trac		OOOT ELEMENTO		untain Crossing		OLIANITA	T. F.O.	
		COST ELEMENTS	UNIT	UNIT PRICE		QUANTI		
		nent Cost			Tunnel under P		Segmen	
		Double Track Section - Total	km		Quantities 71.35	Item Cost	Quantities 4.42	Item Cost
2		Double Track Section - 10tal Double Track Section - At-Grade	km	\$846,282	35.68	\$30,192,198	4.42	\$3,743,952
	3	Double Track Section - On Structure	km	\$1,600,459	4.10	\$6,561,883	0.00	\$(
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	31.57	\$50,532,452	0.00	\$(
Ę	5	Double Track Section - In Trench	km	\$1,600,459	0	\$0	0	\$(
	,	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0	\$0	0	\$1
	6 7	Freight Double Track Freight Single Track	km km	\$846,282 \$423,141	0	\$0 \$0	0	\$(
	9	Four-track construction or reconstruction	km	\$1,692,564	0	\$0	0	\$(
Eart	hv	work and Related Items		. ,. ,				
		Site Preparation - Undeveloped	Hectares	\$10,294	377.317	\$3,884,133	13.484352	\$138,80
		Total Cut	m3	\$7.59	39659109	\$300,818,898	134843.52	\$1,022,80
		Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	24110048 377.317	\$182,877,483 \$2,596,236	134843.52 13.484352	\$1,022,804 \$92,783
		Security Fencing (Both Sides of R/W)	km	\$86,687	35.68	\$3,092,671	4.42	\$383,50
		Special Drainage Facilities	5% of E	arthwork Cost		\$24,663,471		\$133,03
		ures/Tunnels/Walls		***		**		
		Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	0.100 0.000	\$1,170,275 \$0	0.000	\$1
		Long Span Structure	km	\$32,020,021	3.900	\$124,878,081	0.000	\$(
	4 ١	Waterway Crossing - Primary	km	\$24,606,000	0.100	\$2,460,600	0.000	\$0
		Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	\$(
		Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0.000 31.574	\$0 \$1,492,224,180	0.000	\$(
		Twin Single Track TBM (< 6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$1,492,224,180	0.000	\$(
8	8 I	Double Track Drill & Blast	km	\$71,355,733	0	\$0	0	\$(
		Double Track Mined (Soft Soil)	km	\$82,012,758	0	\$0	0	\$0
		Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0	0	\$(
		Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379	0	\$0 \$0	0	\$0
		Trench Short	km	\$42,322,835	0	\$0	0	\$0
1	4	Trench Long	km	\$33,464,567	0	\$0	0	\$0
		Mechanical & Electrical for Tunnels	km	\$1,645,723	31.57	\$51,961,587	0.00	\$(
		Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	0	\$0 \$0	0	\$(\$(
		Single Track Cut and Cover Subway	km	\$25,628,987	0	\$0	0	\$(
Grac	de	Separations		<u> </u>		<u>.</u>	<u> </u>	
1	1 5	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$(
2	2	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	\$0
3	3	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	\$0
7		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
8	8 5	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0
Ç	9 5	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$0
_	_	Street Bridging HSR Trench	ea		0	\$0	0	\$0
_	_	Minor crossing closures	ea	\$151,702	0	\$0	9	\$1,365,321
		ng Items						
		Intermediate Passenger Stations Terminal Passenger Stations	ea ea					
		Parking - Structure	space	\$14,244	0	\$0	\$0	\$0
		Parking - At Grade	space	\$2,042	0	\$0	\$0	\$(
		nd Utility Relocation						
		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0	\$0 \$0	\$0 \$0	\$0
		Single Track Removal	km	\$1,065,366	0	\$0	\$0	\$0 \$0
4	4 I	Major Utility Relocations - Dense Urban	km	\$758,511	0	\$0	\$0	\$0
		Major Utility Relocations - Urban	km	\$579,719	0	\$0	\$0	\$0
		Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	0	\$0 \$0	\$0 \$0	\$0 \$0
		Major Utility Relocations - Subdiban Major Utility Relocations - Undeveloped	km	\$11,919	39.776	\$474,112	4.424	\$52,732
Righ	nt-	of-Way						
		Right-of-Way Required for Each Segment						
_ _	4	Dense Urban	Hectares	\$3,499,093	0	\$0	0	\$(
-	\dashv	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0 \$0	0	\$(\$(
-	\dashv	Suburban Suburban	Hectares	\$408,227	0	\$0	0	\$(
-		Undeveloped	Hectares	\$291,591	217.4748	\$63,413,702	13.484352	\$3,931,916
	2	Right-of-Way Required for Passenger Station & Parking Facilities	Lleate	\$3,499,093	0	**		
2	- 1	Dense Urban	Hectares	53 499 093	()	\$0	0	\$C
2	7	Urban	Hectares			SO!	3	\$(
2		Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0 \$0	0	
2		Dense Suburban Suburban	Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0 0	\$0 \$0	0	\$0
		Dense Suburban Suburban Undeveloped	Hectares	\$2,332,729 \$1,166,364	0	\$0		\$0
		Dense Suburban Suburban Undeveloped Inmental Mitigation	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0	\$0 \$0 \$0	0	\$0 \$0
Er	nvir	Dense Suburban Suburban Undeveloped Inmental Mitigation Inmental Mitigation	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0 0	\$0 \$0	0	\$0
Er Sign	nvir nal	Dense Suburban Suburban Undeveloped Inmental Mitigation	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0	\$0 \$0 \$0	0	\$(\$(
Sign	nvir 1 5 2 (Dense Suburban Suburban Undeveloped Inmental Mitigation Informental Mitigation Informentation	Hectares Hectares Hectares 3% (\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973	0 0 0 0 0 N/A 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696	4,424 4,424	\$561,074 \$561,872 \$3,187,872 \$2,636,586
Sign	nvir 1 5 2 0 3 1	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0 0 0 0 0 N/A	\$0 \$0 \$0 \$73,551,323 \$51,413,805	4.424	\$561,07- \$561,87: \$3,187,87: \$2,636,58(
Sign	nvir nal 1 : 2 (3)	Dense Suburban Suburban Undeveloped Inmental Mitigation Inverse Invers	Hectares Hectares Hectares Hectares 3% (\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0 0 0 0 0 0 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179	4.424 4.424 4.424	\$61,07- \$561,07- \$3,187,87: \$2,636,58(\$253,11:
Sign	nvir 1 5 2 0 3 1 tri	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares Hectares 3% (km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758	4.424 4.424 4.424 4.424	\$61,074 \$561,074 \$3,187,872 \$2,636,586 \$253,112 \$1,629,886
Sign	nvir 1 5 2 6 3 1 tri 1 7	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares Hectares 3% (\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0 0 0 0 0 0 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179	4.424 4.424 4.424	\$1,629,88
Sign Sign S Elec Vehi	nvir 1 5 2 6 3 1 tri 1 7 icle	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares Hectares 3% (km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758	4.424 4.424 4.424 4.424	\$1,629,88 \$3,039,26
Sign Sign Selec Vehi	nvirinal 1	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares 3% c km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072	4.424 4.424 4.424 4.424	\$561,07 \$561,07 \$3,187,87 \$2,636,58 \$253,11 \$1,629,88 \$3,039,26
Sign Elec Vehi	nvirnal	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental	Hectares Hectares Hectares 3% c km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072	4.424 4.424 4.424 4.424	\$561,07 \$561,07 \$3,187,87 \$2,636,58 \$253,11 \$1,629,88 \$3,039,26
Sign Elec Vehi Supj	nvirnal 1 2 0 3 1 1 1 1 1 1 1 1 1	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental Mitigation Informentation Suprementation Informentation Informentati	Hectares Hectares Hectares 3% c km km km km vehicles	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072	4.424 4.424 4.424 4.424	\$(\$561,07- \$3,187,87: \$2,636,58: \$253,11: \$1,629,88! \$3,039,26!
Elec Vehi Supp	nvirnal 1 \$2 (0) ttri 1 1	Dense Suburban Suburban Undeveloped Undeve	Hectares Hectares Hectares 3% c km km km km vehicles	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072	4.424 4.424 4.424 4.424	\$(\$561,07- \$3,187,87: \$2,636,58: \$253,11: \$1,629,88! \$3,039,26!
Sign Elec Vehi Supp Prog	nvirnal 1 \$ 2 (0 tri 1 1 1 1 1 1 1 1 1 1 1	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental Mitigation Informentation Power Supply Informentation Power Distribution Informentation Informentation Informentation Costs Informe	Hectares Hectares Hectares Solution of the control	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072 \$0 \$0	4.424 4.424 4.424 4.424	\$1,629,88* \$3,039,26* \$5,914,84*
Elec Vehi Supp Prog	nvirnal 1 \$2 (0 3 vitri 1 2 icle icle po po po tin ont	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental Mitigation Informentation (W/Fiber Optic Backbone) Informentation Items Informentation Items Informentation Power Supply Informentation Power Distribution Informentation Power Distribution Informentation Power Informentation Informentation Costs Informentation Costs Informentation Costs Informentation Costs Informentation Informentation Costs Informentation Costs Informentation Inf	Hectares Hectares Hectares Solution of the control	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072 \$0 \$660,112,328	4.424 4.424 4.424 4.424	\$63,187,872 \$3,187,872 \$2,636,588 \$253,112 \$1,629,888 \$3,039,266 \$6 \$6 \$5,914,842
Sign Sign Sign Proc	nvirnal 1 \$2 (0 3) 2 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dense Suburban Suburban Undeveloped Inmental Mitigation Informental Mitigation Informentation Power Supply Informentation Power Distribution Informentation Informentation Informentation Costs Informe	Hectares Hectares Hectares Solution of the control	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000	0 0 0 0 0 N/A 71.350 71.350 71.350	\$0 \$0 \$0 \$73,551,323 \$51,413,805 \$42,522,696 \$4,082,179 \$26,286,758 \$49,017,072 \$0 \$0	4.424 4.424 4.424 4.424	\$1,629,88* \$3,039,26* \$5,914,84*

Trac				untain Crossing		21111		
Trac		COST ELEMENTS	UNIT	UNIT PRICE		QUANTI		
-		nent Cost			Segmen		Segmen	
		Double Track Section - Total	km	1	Quantities 13.72	Item Cost	Quantities 7.988	Item Cost
	2	Double Track Section - At-Grade	km	\$846,282	13.22	\$11,187,849	7.988	\$6,675,473.28
	3	Double Track Section - On Structure	km	\$1,600,459	0.50	\$800,230	0.10	\$160,045.93
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.00	\$0	0.00	\$0.00
	5	Double Track Section - In Trench	km	\$1,600,459	0	\$0	0	\$0.00
		Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0	\$0	0	\$0.00
	6	Freight Double Track	km	\$846,282	0	\$0	0	\$0.00
	7	Freight Single Track Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0	\$0 \$0	0	\$0.00 \$0.00
_	_	work and Related Items	KM	\$1,692,564	U	\$0	U	\$0.00
		Site Preparation - Undeveloped	Hectares	\$10,294	41.81856	\$430,483.79	24.347424	\$250,634.44
		Total Cut	m3	\$7.59	402945.6	\$3,056,388.69	240426.24	\$1,823,660.66
		Total Fill	m3	\$7.59	402945.6	\$3,056,388.69	240426.24	\$1,823,660.66
		Landscape/Erosion Control	Hectares	\$6,881	41.81856	\$287,744.43	24.347424	\$167,529.34
		Security Fencing (Both Sides of R/W) Special Drainage Facilities	km	\$86,687 arthwork Cost	13.22	\$1,146,002.51 \$398,850	7.89	\$683,787.28 \$237,464
		ures/Tunnels/Walls	376 UI E	artiiwork cost		\$370,030		\$237,40
		Standard Structure	km	\$11,702,749	0.3	\$3,510,824.63	0.1	\$1,170,274.88
		High Structure	km	\$14,043,299	0	\$0.00	0	\$0.00
		Long Span Structure	km	\$32,020,021	0	\$0.00	0	\$0.00
-		Waterway Crossing - Primary	km	\$24,606,000	0.2	\$4,921,200.00	0	\$0.00 \$0.00
-		Waterway Crossing - Secondary (Irrigation/Canal Crossing) Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0	\$0.00 \$0.00	0	\$0.00
		Twin Single Track Billi & Blast (<0 Miles)	km	\$47,261,589	0	\$0.00	0	\$0.00
		Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0.00	0	\$0.00
8	8	Double Track Drill & Blast	km	\$71,355,733	0	\$0.00	0	\$0.00
		Double Track Mined (Soft Soil)	km	\$82,012,758	0	\$0.00	0	\$0.00
		Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0.00	0	\$0.00
		Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379	0	\$0.00 \$0.00	0	\$0.00 \$0.00
		Trench Short	km	\$41,006,379	0	\$0.00	0	\$0.00
1	14	Trench Long	km	\$33,464,567	0	\$0.00	0	\$0.00
1	15	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.00	\$0.00	0.00	\$0.00
		Retaining Walls	km	\$3,749,214	0	\$0.00	0	\$0.00
		Containment Walls Single Track Cut and Cover Subway	km	\$1,278,634	0	\$0.00	0	\$0.00
		Separations	km	\$25,628,987	0	\$0.00	0	\$0.00
				#14 (20 42)		ėo.		**
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0
	_	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	\$0
	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	\$0
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
	_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0
	_	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$0
	_	Street Bridging HSR Trench	ea		0	\$0	0	\$0
_	_	Minor crossing closures	ea	\$151,702	25	\$3,792,557	9	\$1,365,321
		ng Items					1	
		Intermediate Passenger Stations Terminal Passenger Stations	ea ea					
		Parking - Structure	space	\$14,244	0	\$0	0	
								\$0
Rail	4	Parking - At Grade	space	\$2,042	0	\$0	0	
		Parking - At Grade nd Utility Relocation	space	\$2,042	0	\$0		
	1 1	nd Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	0	\$0	0	\$C \$C
	1 2	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0	\$0 \$0	0 0 0	\$C \$C
1	1 2 3	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal	km km km	\$1,083,588 \$1,083,588 \$54,000	0 0 0	\$0 \$0 \$0	0 0 0 0	\$C \$C \$C \$C
;	1 2 3 4 5	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$1,083,588 \$1,083,588	0	\$0 \$0	0 0 0	\$0 \$0 \$0
;	1 2 3 4 5	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban	km km km km	\$1,083,588 \$1,083,588 \$1,083,588 \$54,000 \$758,511	0 0 0 0	\$0 \$0 \$0 \$0	0 0 0 0	\$C \$C \$C \$C
; ;	1 2 3 4 5 6 7	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971	0 0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345	0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0	\$(\$(\$) \$(\$) \$(\$) \$(\$)
Righ	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped of-Way	km km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971	0 0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0	\$(\$(\$) \$(\$) \$(\$) \$(\$)
Righ	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Orb Way Right-of-Way Required for Each Segment	km km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919	0 0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535	0 0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped of-Way	km km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971	0 0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0	\$(\$(\$(\$) \$(\$ \$(\$) \$(\$ \$(\$) \$(\$) \$(\$ \$(\$) \$(\$ \$(\$) \$(\$ \$ \$(\$) \$(\$) \$(\$) \$(\$) \$(\$ \$ \$ \$
Righ	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Orl-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban	km km km km km km km Hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban	km km km km km km km km hem km km km km km km km km km	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped	km km km km km km km Hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	km km km km km km km km km hectares Hectares Hectares Hectares Hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$12,193,917	0 0 0 0 0 0 0 0 0 7,988	\$(\$\frac{\fir}\frac{\f{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fr
Righ	1 2 3 4 5 6 7 8 ht-	nd Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Orf-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	km km km km km km km km hectares Hectares Hectares Hectares Hectares Hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$12,193,917	0 0 0 0 0 0 0 0 0 7.988	\$(\$(\$(\$(\$(\$5, \$1, \$2, \$1, \$2, \$2, \$2, \$2, \$3, \$4, \$4, \$4, \$4, \$4, \$4, \$4, \$4, \$4, \$4
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	km km km km km km km km km hectares Hectares Hectares Hectares Hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$12,193,917	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Orf-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$408,227	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7.988	\$(\$(\$(\$(\$(\$5,213) \$95,213 \$(\$(\$4,213)
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535	0 0 0 0 0 0 0 0 0 7,988 0 0 0 0 0 0 0 24.347424	\$(\$(\$(\$(\$(\$5,213) \$95,213 \$(\$4,213) \$(
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Itility Relocations - Undeveloped Itility Relocations - Undeveloped Itility Relocations - Undeveloped Itility Relocations - Undeveloped India Utility Relocations - Undeveloped Ind	km hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Orf-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Mitigation	km hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$408,227	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7.988	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$
Righ	1 2 3 4 5 6 7 8 htt-1 2 irc	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Urban Urban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped Ommental Mitigation Inmental Mitigation Inmental Mitigation Inmental Mitigation Is and Communication	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 7.988 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(
Righ	1 2 3 4 5 6 7 8 ht-	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Itility	km hectares	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7.988	\$(\$(\$(\$(\$(\$(\$) \$(\$(\$(\$) \$(\$(\$(\$) \$(\$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$(\$) \$(\$ \$(\$) \$(\$) \$(\$ (
Righ	1 2 3 4 5 6 7 8 ht- 1 2 irc	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Urban Urban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped Ommental Mitigation Inmental Mitigation Inmental Mitigation Inmental Mitigation Is and Communication	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$21,591 \$1,166,364 \$408,227 \$2,332,729 \$1,166,364 \$408,227 \$2,332,729 \$1,166,364 \$408,227	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Righ	1 1 2 3 4 5 6 7 8 htt-1 2 1 2 3 1 2 3 2 2 2 2 3 2 2 2 3 2 2 2 3 2 2 2 2	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Urban Urban Dense Suburban	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7.988 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Righ	1 2 3 4 5 6 7 8 htt-1 2 2 irc	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Itility Relocations - Undeveloped Indeveloped Itility Relocations - Undeveloped Itility Relocations - Itility Reloca	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Envi	1 2 3 4 5 6 7 8 ht- 1 2 2 irrc invi	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped Urban Undeveloped Suburban Suburban Suburban Suburban Undeveloped Ommental Mitigation Tommental Mitigation Tommental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Iffication I tems Traction Power Supply Traction Power Distribution	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Envi Esign Elec	1 2 3 4 5 6 7 8 ht-1 2 icc	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Suburban S	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$)
Envi Envi Essign	1 2 3 4 5 6 7 8 ht- 1 2 2 iirc 1 2 2 iicl 1 1 2 1	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Undeveloped Orf-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban S	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$1,015,72; \$1,015,72; \$2,942,93; \$5,487,71;
Envi Esign Sign Vehi	1 2 3 4 5 6 7 8 ht- 1 2 2 irc	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Indigor Utility Relocation - Undeveloped Indigor Utility Relocation - Undeveloped Indigor Utility Relocation - Undeveloped Indigor Utility Communication - Undeveloped Indigor Utility Communication - Undeveloped Indigor Utility Relocation - Undeveloped Indigor Utility Relocation - Undeveloped Indigor Utility Relocations - Undeveloped Indigor Utility Relo	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$5,232,729 \$1,166,364 \$408,227 \$291,591 \$720,586 \$595,973 \$57,213	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$
Envi	1 2 3 4 5 6 7 8 ht-1 2 2 icl 1 2 icl 1 pc 1	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Urban Urban Urban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped Ommental Mitigation Tommental Mitigation Tommental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Iffication I tems Traction Power Distribution e Costs Fleet size estimate ver Facility Costs Facility Costs breakdown	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$1 \$
Envi Envi Essign Vehi	1 2 3 4 5 6 7 8 ht-1 2 2 icl	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Removal Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Indeveloped In	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Envi Esign Elec Vehi Sup	1 2 3 4 5 6 7 8 ht- 1 2 3 icc. 1 2 3 icc. 1 2 1 gray	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Orf-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Su	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$5,232,729 \$1,166,364 \$408,227 \$291,591 \$720,586 \$595,973 \$57,213	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Envi Envi Esign Elecc Sign Procon	1	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Itility Relocations - Itility Relocation - Itility Relocations - Itility - Itility Relocations - Itility - Itility - It	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591 \$1,166,364 \$408,227 \$291,591	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$
Envi Ersign Elec Supp Procon	a	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Relocation (Permanent) Single Track Relocations - Dense Urban Major Utility Relocations - Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Of-Way Right-of-Way Required for Each Segment Dense Urban Urban Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Ommental Mitigation Tonmental Mitigation Tonmental Mitigation Signaling (ATC) Communication (W/Fiber Optic Backbone) Wayside Protection System Iffication I tems Traction Power Distribution e Costs Fleet Size estimate Outpendense Implementation Costs Facility Cost breakdown Implementation Costs Ingencies Ingencies	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$) \$(\$)
Envi Error Elec Vehi Sup Procon Con	a	Ind Utility Relocation Single Track Relocation (Temporary) Single Track Relocation (Permanent) Single Track Renoval Major Utility Relocations - Dense Urban Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped Itility Relocations - Itility Relocation - Itility Relocations - Itility - Itility Relocations - Itility - Itility - It	km k	\$1,083,588 \$1,083,588 \$54,000 \$758,511 \$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0 0 0 0 0 0 0 0 13.720	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$163,535 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$12,193,917 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0 0 0 0 0 7,988	\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$(\$

Algorithment Cost	Track			intain crossing		
Pouls Track Section - Total	Track	COST ELEMENTS	UNIT	UNIT PRICE	QUANTIT	IES
1 Desire From Section - Letted Nm	1	ment Cost			Segment	19
2 Double Front Section - As Grante In		(C	Quantities	Item Cost
3 Coult Prise Section - In Turner of Activery Section - In Turner of		Double Track Section - Total	km		16.79	
4 Soublet Frost Section - In Trends - Subsery	2		km	\$846,282	16.19	\$13,701,307.34
Signification Sections - In Trained of Eubory	3	Double Track Section - On Structure	km	\$1,600,459	0.60	\$960,275.55
B			km		0.00	\$0.00
Description	5					\$0.00
2 Prograf Stripe Track						
O Supering Control of Control						
Sub Proposition - Undockspane	_	. 3 3				
Silia Programation - Undersoftpased Heactures \$10,244 \$1,17972 \$10,240,201			km	\$1,692,564	0	\$0.0
2 Total Cult 1 Total Cult 2 Total Cult 2 Total Cult 3 Total Cult 4 Total Cult 5 Total Cult 6 Total Cult 7 Total Cult 7 Total Cult 7 Total Cult 8 Total Cult 8 Total Cult 9 Total Cult 1	Earth					<u> </u>
3 Total Till	1					
Description						
7 Security Francing (Beth Spider of RMV)						
E. Secular Disturbus Footibles 536.07 Earthwork Cost						
Structures / Tumnels / Walls St. Structures Isra St.					10.17	
2 Ping Structure						
3 Long Span Structure			km	\$11,702,749	0.5	\$5,851,374.3
A Materiany Crossing - Shortmary (Frigilitany Canal Crossing)	2	High Structure	km		0	\$0.0
Wilderway Crossing - Scondary (trigation/Canal Crossing) Irm \$177,00,000 0 \$0.0 \$	3	Long Span Structure	km	\$32,020,021	0	\$0.0
C Truin Single Trace Dital & Blast (c4 Miles)	4					\$2,460,600.0
Description Proceedings Proceedings Description						\$0.0
2 Tunk Single Track TBM Wind Lude (se Miles)						
B Double Frack Mind (Self) Sol) Sol						
Disclare Transfer (Final & Bland Annea)						
10 Sesimac Chamber (Drill & Blasch/Mined)						
17 Crossovers		·				
12 Cut & Cover Double Track Turnet						
13 Trench Short						
14 Trench Long						
15 Mechanical & Electrical for Turnels						
1 Fortament Walls						\$0.00
17 Containment Walls						\$0.0
1				\$1,278,634		\$0.0
1 Street Divercrossing HSR - (Urban)	18	Single Track Cut and Cover Subway	km	\$25,628,987	0	\$0.0
2 Street Overcrossing HSR - (Unbeveloped)	Grad	e Separations				
2 Street Overcrossing HSR - (Unbeveloped)	1	Street Overcrossing HSR - (Urban)	ea	\$14.628.436	0	\$
3 Street Checkrossing HSR - (Undeveloped)						
7 Street Undercrossing HSR - (Urban)						
B Street Undercrossing HSR - (Suburban)						
9 Street Undercrossing HSR - (Undeveloped)	7	* ' '	ea		0	\$(
1 Street Bridging HSR Trench ea	8	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$
21 Minor crossing closures ea \$151,702 29 \$4,399,36 Building I Lems	9	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$(
21 Minor crossing closures ea \$151,702 29 \$4,399,36 Building I Lems	10	Street Bridging HSR Trench	ea		0	\$(
Building Items	21	Minor crossing closures	ea	\$151,702	29	\$4.399.36
1 Intermediate Passenger Stations		*				
2 Terminal Passenger Stations			63			
3 Parking - Structure						
Rail and Utility Relocation (Temporary)				\$14,244	0	\$(
1 Single Track Relocation (Fermorary)	4	Parking - At Grade	space	\$2,042	0	\$(
1 Single Track Relocation (Fermorary)	Rail a	and Utility Relocation				
3 Single Track Removal	1	Single Track Relocation (Temporary)	km	\$1,083,588	0	\$
4 Major Utility Relocations - Dense Urban	2	Single Track Relocation (Permanent)	km	\$1,083,588	0	\$
S Major Utility Relocations - Urban			km			\$
6 Major Utility Relocations - Dense Suburban						\$
7 Major Utility Relocations - Suburban km \$232,971 0 \$ \$ \$ \$ \$ \$ \$ \$ \$						\$
B Major Utility Relocations - Undeveloped						
Right-of-Way 1 Right-of-Way Required for Each Segment 2 Dense Urban Hectares \$3,499,093 0 \$5 3 Dense Suburban Hectares \$2,332,729 0 \$5 4 Dense Suburban Hectares \$1,166,364 0 \$5 5 Suburban Hectares \$408,227 0 \$5 6 Undeveloped Hectares \$291,591 \$51,17592 \$14,922,43 7 Dense Urban Hectares \$3,499,093 0 \$5 8 Dense Urban Hectares \$3,499,093 0 \$5 9 Dense Urban Hectares \$3,499,093 0 \$5 0 Dense Suburban Hectares \$3,499,093 0 \$5 0 Dense Suburban Hectares \$3,499,093 0 \$5 0 Dense Suburban Hectares \$1,166,364 0 \$5 0 Dense Suburban Hectares \$1,903,729 0 \$5 0 Dense Suburban Hectares \$1,232,729 0 \$5 1 Signaling (ATC) Km \$72,586 16,790 \$10,006,39 3 Wayside Protection System Km \$59,973 16,790 \$10,006,39 3 Wayside Protection System Km \$59,973 16,790 \$10,006,39 1 Traction Power Supply Km \$368,420 16,790 \$11,534,64 2 Traction Power Distribution Km \$686,995 16,790 \$11,534,64 3 Traction Power Distribution \$5 4 Traction Power Distribution						
Right-of-Way Required for Each Segment			km	\$11,919	16.790	\$200,12
Dense Urban	rkiani					
Urban			10. 2	én 400 con		
Dense Suburban		Delise Ulball		33,499,0931		
Suburban		Urhan				
Undeveloped			Hectares	\$2,332,729	0	\$
2 Right-of-Way Required for Passenger Station & Parking Facilities		Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$ \$
Dense Urban		Dense Suburban Suburban	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0 0 0	\$ \$ \$
Urban	1	Dense Suburban Suburban Undeveloped	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0 0 0	\$ \$ \$
Suburban	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 51.17592	\$ \$ \$ \$14,922,43
Undeveloped	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban	Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729	0 0 0 51.17592	\$ \$ \$ \$14,922,43
Environmental Mitigation 3% of Line Cost \$2,358,48	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0 0 0 51.17592 0 0	\$14,922,43' \$14,922,43' \$14,922,43'
Environmental Mitigation 3% of Line Cost \$2,358,48	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0 0 0 51.17592 0 0 0	\$(\$1 \$14,922,43' \$(\$) \$(\$) \$(\$)
Signals and Communication	2	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0 0 0 51.17592 0 0 0	\$ \$ \$ \$14,922,43 \$ \$ \$ \$ \$ \$
1 Signaling (ATC)	2 Envir	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 51.17592 0 0 0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
2 Communications (W/Fiber Optic Backbone)	2 Envir	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Conmental Mitigation vironmental Mitigation	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 51.17592 0 0 0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
3 Wayside Protection System Km \$57,213 16.790 \$960,61	2 Envir Env	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Commental Mitigation Wironmental Mitigation als and Communication	Hectares 3% of	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0 0 0 51.17592 0 0 0 0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Traction Power Supply km \$368,420 16.790 \$6,185,77 2 Traction Power Distribution km \$686,995 16.790 \$11,534,64 Vehicle Costs 1 Fleet size estimate vehicles 44000000 \$ Support Facility Costs 1 Facility cost breakdown ea 0 \$ Program Implementation Costs \$	2 Envir Env Signa	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Conmental Mitigation Ais and Communication Signaling (ATC)	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
1 Traction Power Supply km \$368,420 16.790 \$6,185,77 2 Traction Power Distribution km \$686,995 16.790 \$11,534,64	2 Envir Env Signa 1 2	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation Signaling (ATC) Communication (WiFiber Optic Backbone)	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0 0	\$14,922,43 \$14,922,43 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
2 Traction Power Distribution	1	Dense Suburban Suburban Lindeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped ronmental Mitigation vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0 0	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Vehicle Costs 1 Fleet size estimate vehicles 44000000 \$ Support Facility Costs 1 Facility cost breakdown ea 0 \$ Program Implementation Costs	Envir Envir Signa 1 2 3	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Trification Items	Hectares Kontares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0 0 0 16.790 16.790	\$ \$14,922,43 \$ \$14,922,43 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
1 Fleet size estimate	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation wironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification I tems Traction Power Supply	Hectares Kem Kem Kem Kem	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Support Facility Costs 1 Facility cost breakdown ea 0 \$ Program Implementation Costs	1	Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Supply Traction Power Distribution	Hectares Kem Kem Kem Kem	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
1 Facility cost breakdown ea 0 \$ Program Implementation Costs	1	Dense Suburban Suburban Lindeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped onnental Mitigation vironmental Mitigation Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System rification I tems Traction Power Supply Traction Power Distribution Signaling (ATC) Communication System Communication	Hectares Komman	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Program Implementation Costs	1	Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Commental Mitigation Wironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Distribution Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Irraction Open Supply Traction Power Distribution Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Irraction Open Supply Traction Power Distribution Signaling (ATC) Communication System Irraction Power Supply Traction Power Supply Traction Power Supply Traction Power Distribution Signaling (ATC) Signaling (ATC) Communication (M/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Supply	Hectares Komman	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Wironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Supply Traction Power Distribution Signaling Costs Fleet size estimate First Station Power Supply First Station Power Stat	Hectares Komman	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Program Implementation Costs 25.5% of Total Cost and Procurement \$24,453,71	2 2 Envir En	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (wifiber Optic Backbone) Wayside Protection System Fification I tems Trraction Power Supply Traction Power Distribution Ile Costs Fleet size estimate Ort Facility Costs Facility Costs Facility Cost breakdown	Hectares Vehicles	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	Envirus 1 2 3 3 Elect 1 2 2 Vehica 1 1 Progu	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Frification I tems Traction Power Supply Traction Power Distribution Cle Costs Fleet size estimate Ort Facility Costs Facility Costs Facility cost breakdown Familmplementation Costs	Hectares Vehicles	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Contingencies	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Commental Mitigation Wironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Distribution Signaling (ATC) Communications (M/Fiber Optic Backbone) Wayside Protection System Irraction Power Distribution Signaling (ATC) Signaling (ATC) Communications (M/Fiber Optic Backbone) Wayside Protection System Irraction Power Distribution Signaling (ATC) Signaling (ATC) Fiber Size estimate Signaling (ATC)	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
One Hannester	Envir Envir Envir Signa 3 3 Elect 1 2 2 Vehic Supp Progger Prog	Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Onmental Mitigation Wironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irrification I tems Traction Power Supply Traction Pow	Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$14,922,43 \$ \$ \$ \$ \$ \$
Contingencies 25% of Total Construction Cost \$23,974,23	Envir Envir Envir Signa 3 3 Elect 1 2 2 Vehic Supp Progger Prog	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Commental Mitigation Wironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Distribution Signaling (ATC) Communications (M/Fiber Optic Backbone) Wayside Protection System Irraction Power Distribution Signaling (ATC) Signaling (ATC) Communications (M/Fiber Optic Backbone) Wayside Protection System Irraction Power Distribution Signaling (ATC) Signaling (ATC) Fiber Size estimate Signaling (ATC)	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	1	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation Signaling (ATC) Communication (Wifiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Supply Traction Power Distribution Cle Costs Fleet size estimate Ort Facility Costs Facility cost breakdown ram Implementation Costs Ingencies Intigencies	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Total Construction \$78,616,003	Envir Envir 1 2 3 3 3 Elect 1 1 2 Number 1 1 Proggi Procedure 1 1 Procedure 1 1 Proggi Procedure 1 1 Proggi Procedure 1 1 Procedure 1 Proced	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Fification I tems Traction Power Supply Traction Power Distribution Cle Costs Fleet size estimate Ort Facility Costs Facility cost breakdown Fam Implementation Costs Ingencies Construction Long Tassen Costs Long Tassen	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
Contingencies 25% of Total Construction Cost \$23,974,23	1	Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Onmental Mitigation Wironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irrification I tems Traction Power Supply Traction Pow	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$14,922,43 \$14,922,43 \$3 \$2,358,46 \$12,098,63 \$10,006,33 \$960,63 \$6,185,77 \$11,534,64
Total Construction \$78,616,00	Envir 2 2 2 2 2 2 2 2 2	Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Fification I tems Traction Power Supply Traction Power Distribution Cle Costs Fleet size estimate Ort Facility Costs Facility cost breakdown Fam Implementation Costs Ingencies Construction Long Tassen Costs Long Tassen	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$14,922,43 \$14,922,43 \$14,922,43 \$2,358,46 \$12,098,65 \$10,006,36 \$6,185,77 \$11,534,64 \$24,453,71 \$23,974,23 \$78,616,00
Total Construction \$78,616,00	Envir Signa 2 2 3 3 3 Elect 1 2 2 4 1 2 2 1 2 2 3 3 Elect 1 5 2 2 2 1 2 1	Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Commental Mitigation Wironmental Mitigation Signaling (ATC) Communications (Wiriber Optic Backbone) Wayside Protection System Irraction Power Distribution Items Irraction Power Supply Traction Power Distribution Items Facility cost breakdown Facility cost breakdown Facility cost breakdown Implementation Costs Ingencies Ingencies Construction Construction and Right of Way	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 44000000 0 ost and Procurement	0 0 0 51.17592 0 0 0 0 0 0 16.790 16.790	\$14,922,4: \$14,922,4: \$2,358,4! \$12,098,6: \$10,006,3' \$960,6' \$6,185,7' \$11,534,6' \$24,453,7' \$23,974,2: \$78,616,00 \$95,896,92

		COST ELEMENTS	UNIT	UNIT PRICE		QUANT	TITIES	
		nent Cost	UNIT	OWITHRIE	UPRR: SAC DT Depot (Alignme	to STO DT Station ent A1)	CCT: SAC DT Dept t	ent A2)
Trac		Double Track Section - Total	km		Quantities 147.980	Item Cost	Quantities 150.824	Item Cost
	2	Double Track Section - At-Grade	km	\$846,282	129.605	\$109,682,393	135.284	\$114,488,429
	3	Double Track Section - On Structure	km	\$1,600,459	18.375	\$29,408,439	15.540	\$24,871,137
	4	Double Track Section - In Tunnel or Subway Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
	5	Single Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
	6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0
	7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
	9	Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
		work and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	356.063	\$3,665,345	393.334	\$4,049,009
		Total Cut	m3	\$7.59	890,918.0	\$6,757,715	984,094.0	\$7,464,466
		Total Fill	m3	\$7.59	890,918.0	\$6,757,715	984,094.0	\$7,464,466
		Landscape/Erosion Control	Hectares	\$6,881	8.000	\$55,046	6.080	\$41,835
		Security Fencing (Both Sides of R/W) Special Drainage Facilities	km	\$86,687 Earthwork Cost	129.605	\$11,235,072	135.284	\$11,727,368
		tures/Tunnels/Walls	5% 01	Earthwork Cost		\$1,423,545		\$1,537,357
		Standard Structure	km	\$11,702,749	11.195	\$131,012,272	10.345	\$121,064,936
		High Structure	km	\$14,043,299	8.150	\$114,452,883	4.650	\$65,301,338
		Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
_		Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	1.530 1.940	\$37,647,180 \$38,218,000	0.480 1.905	\$11,810,880 \$37,528,500
		Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	1.940	\$30,210,000	1.905	\$37,528,500
		Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
		Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
		Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
_	_	Crossovers	ea ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0
-	12	Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
	13	Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
		Trench Long	km	\$33,464,567	0.000		0.000	
		Mechanical & Electrical for Tunnels Retaining Walls	km	\$1,645,723	0.000	\$0	0.000	\$0
		Containment Walls	km km	\$3,749,214 \$1,278,634	31.160 0.000	\$116,825,507 \$0	25.860 0.000	\$96,954,673 \$0
		Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
		Separations						
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	11	\$160,912,795	18	\$263,311,847
		Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	36 12	\$198,946,729 \$11,182,627	55 10	\$303,946,391 \$9,318,855
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	6	\$91,671,532	5	\$76,392,943
		Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	20	\$117,027,488	7	\$40,959,621
		Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,195	0	\$0
		Street Bridging HSR Trench	ea		0	\$0	0	\$0
		Minor crossing closures ng Items	ea	\$151,702	5	\$758,511	2	\$303,405
		Intermediate Passenger Stations	ea	N/A	1		1	
		Stockton Intermediate Station	ea	\$10,000,000	1	\$10,000,000	1	\$10,000,000
	2	Terminal Passenger Stations	ea	N/A	1		1	
	4	Sacramento Downtown Terminal Station Power Inn Road Terminal Station	ea ea	\$224,227,000 \$224,227,000	1 0	\$224,227,000 \$0	1 0	\$224,227,000 \$0
_	3	Parking - Structure	space	\$224,227,000	2,338	\$33,302,472	2,338	\$33,302,472
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		nd Utility Relocation						
		Single Track Relocation (Temporary)	km	\$1,083,588	4.400	\$4,767,787	2.400	\$2,600,611
		Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	57.807 0.000	\$62,638,692 \$0	33.119 0.000	\$35,887,075 \$0
		Major Utility Relocations - Dense Urban	km	\$758,511	22.170	\$16,816,200	20.534	\$15,575,275
	5	Major Utility Relocations - Urban	km	\$579,719	18.310	\$10,614,664	14.800	\$8,579,849
		Major Utility Relocations - Dense Suburban	km	\$406,345	16.600	\$6,745,334	32.175	\$13,074,165
		Major Utility Relocations - Suburban	km	\$232,971	38.775	\$9,033,466	48.975	\$11,409,774
		Major Utility Relocations - Undeveloped -of-Wav	km	\$11,919	59.780	\$712,546	38.880	\$463,429
		Right-of-Way Required for Each Segment						
	_†	Dense Urban	hectare	\$3,499,093	42.345	\$148,169,798	49.282	\$172,443,987
_[_[Urban	hectare	\$2,332,729	35.794	\$83,497,693	34.350	\$80,129,232
4	4	Dense Suburban Suburban	hectare	\$1,166,364	25.232	\$29,429,706	83.980	\$97,951,280
+	-	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	113.734 167.512	\$46,429,341 \$48,844,881	143.298 107.510	\$58,498,177 \$31,348,835
+	2	Right-of-Way Required for Passenger Station & Parking Facilities	cture	Ψ2/1,J71	107.312	\$ 10,077,001	107.310	ψ31,340,033
		Dense Urban	hectare	\$3,499,093	3.209	\$11,229,465	3.209	\$11,229,465
1	1	Urban	hectare	\$2,332,729	1.980	\$4,618,803	1.980	\$4,618,803
-	4	Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
+		Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	0.000	\$0 \$0	0.000	\$0 \$0
Evir	on	nmental Impact Mitigation	neciale	9271,391	0.000	ψU	0.000	ΨŪ
	1	Environmental Mitigation	3%	of Line Cost		\$57,867,848		\$57,601,105
		ls and Communication						
		Signaling (ATC) Communications (w/Fiber Ontic Rackhops)	km	\$720,586	147.980	\$106,632,304	150.824	\$108,681,651
		Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	147.980 147.980	\$88,192,131 \$8,466,445	150.824 150.824	\$89,887,079 \$8,629,160
		ification Items	KIII	ψ31,213	147.700	CFF,OOF,OF	130.024	ψ0,027,100
	1	Traction Power Supply	km	\$368,420	147.980	\$54,518,772	150.824	\$55,566,558
		Traction Power Distribution	km	\$686,995	147.980	\$101,661,475	150.824	\$103,615,288
		le Costs Fleet Size Estimate				én	T	60
		Prest Size Estimate Prest Facility Costs				\$0		\$0
		Storage Yard & Maintenance Facility						
Pro	gra	am Implementation Costs			·			
		Program Implementation Costs	25.5% of Tota	I Cost and Procurement		\$601,549,031		\$620,633,720
		ngencies	2504 6.7	tal Canataristics C. 1		\$500 750 050		#/00 1/1 to:
		Construction	Z5% 0ĭ l0t	tal Construction Cost		\$589,753,952 \$1,928,928,276		\$608,464,431 \$1,920,036,841
	al ۵							
Tota		Construction and Right of Way				\$2,359,015,809		\$2,433,857,725

COST ELEMENTS	UNIT	UNIT PRICE		QUAN	TITIES	
Alignment Cost			UPRR: SAC DT Depot (Alignme	to STO DT Station	CCT: SAC DT Depot (Alignme	
Track			Quantities	Item Cost	Quantities	Item Cost
Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	141.500 122.435	\$103,614,719	144.344 128.114	\$108,420,755
3 Double Track Section - On Structure	km	\$1,600,459	19.065	\$30,512,436	16.230	\$25,975,134
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0.000	\$0 \$0
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
Earthwork and Related Items						
1 Site Preparation - Undeveloped	Hectares	\$10,294	343.949	\$3,540,636	381.219	\$3,924,301
2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	860,631.6 860,631.6	\$6,527,990 \$6,527,990	953,807.6 953,807.6	\$7,234,740 \$7,234,740
6 Landscape/Erosion Control	Hectares	\$6,881	6.720	\$46,239	4.800	\$7,234,740
7 Security Fencing (Both Sides of R/W)	km	\$86,687	122.435	\$10,613,544	128.114	\$11,105,839
8 Special Drainage Facilities	5% of E	arthwork Cost		\$1,362,820		\$1,476,632
tructures/Tunnels/Walls						
1 Standard Structure	km	\$11,702,749	12.645	\$147,981,258	11.795	\$138,033,922
2 High Structure 3 Long Span Structure	km km	\$14,043,299 \$32,020,021	7.250 0.000	\$101,813,914 \$0	3.750 0.000	\$52,662,369 \$0
Waterway Crossing - Primary	km	\$24,606,000	1.530	\$37,647,180	0.480	\$11,810,880
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	1.966	\$38,730,200	1.931	\$38,040,700
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
Bouble Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
9 Double Track Mined (Soft Soll) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0
11 Crossovers	ea	\$80,782,844		\$0		\$0
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench Long	km	\$33,464,567	0.000		0.000	
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0
16 Retaining Walls 17 Containment Walls	km km	\$3,749,214 \$1,278,634	28.000 0.000	\$104,977,991 \$0	22.700 0.000	\$85,107,157 \$0
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations		,, .				
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	11	\$160,912,795	18	\$263,311,847
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	23	\$127,104,855	42	\$232,104,517
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	20	\$18,637,711	18	\$16,773,940
7 Street Undercrossing HSR - (Urban) 8 Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	6 15	\$91,671,532 \$87,770,616	5 2	\$76,392,943 \$11,702,749
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	6	\$5,916,390	3	\$2,958,195
10 Street Bridging HSR Trench	ea	7.00,000	0	\$0	0	\$0
21 Minor crossing closures	ea	\$151,702	7	\$1,061,916	4	\$606,809
Building Items						
1 Intermediate Passenger Stations	ea	N/A	1	£10,000,000	1	£10,000,000
Stockton Intermediate Station 2 Terminal Passenger Stations	ea ea	\$10,000,000 N/A	1	\$10,000,000	1	\$10,000,000
Sacramento Downtown Terminal Station	ea	\$224,227,000	1	\$224,227,000	1	\$224,227,000
Power Inn Road Terminal Station	ea	\$224,227,000	0	\$0	0	\$0
3 Parking - Structure	space	\$14,244	2,338	\$33,302,472	2,338	\$33,302,472
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$0
Rail and Utility Relocation 1 Single Track Relocation (Temporary)		A4 000 500	0.000	40.004.044	0.000	40// 07/
2 Single Track Relocation (Temporary)	km km	\$1,083,588 \$1,083,588	2.800 52.557	\$3,034,046 \$56,949,856	0.800 27.869	\$866,870 \$30,198,239
3 Single Track Removal	km	\$54,000	0.000	\$0,747,650	0.000	\$0,170,23
4 Major Utility Relocations - Dense Urban	km	\$758,511	22.170	\$16,816,200	20.534	\$15,575,275
5 Major Utility Relocations - Urban	km	\$579,719	18.310	\$10,614,664	14.800	\$8,579,849
6 Major Utility Relocations - Dense Suburban	km	\$406,345	11.500	\$4,672,973	27.075	\$11,001,803
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971	26.700 70.476	\$6,220,336	36.900	\$8,596,644 \$590,919
8 Major Utility Relocations - Undeveloped	Km	\$11,919	/0.4/6	\$840,036	49.576	\$590,919
1 Right-of-Way Required for Each Segment	1	I	T			
Dense Urban	hectare	\$3,499,093	42.345	\$148,169,798	49.282	\$172,443,987
	hectare	\$2,332,729	35.794	\$83,497,693	34.350	\$80,129,232
Urban	hectare	\$1,166,364		\$20,388,049	76.228	\$88,909,623
Dense Suburban			17.480			* * * * * * * * * * * * * * * * * * * *
Dense Suburban Suburban	hectare	\$408,227	71.022	\$28,993,130	100.586	
Dense Suburban Suburban Undeveloped					100.586	
Dense Suburban Suburban	hectare hectare	\$408,227 \$291,591	71.022	\$28,993,130 \$60,267,505		\$42,771,459
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban	hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729	71.022 206.685 3.209 1.980	\$28,993,130	146.683 3.209 1.980	\$42,771,459 \$11,229,465
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban	hectare hectare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	71.022 206.685 3.209 1.980 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0	3.209 1.980 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$0
Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban	hectare hectare hectare hectare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	71.022 206.685 3.209 1.980 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0	146.683 3.209 1.980 0.000 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$C
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped	hectare hectare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	71.022 206.685 3.209 1.980 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0	3.209 1.980 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$C
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Undeveloped Vironmental Impact Mitigation	hectare hectare hectare hectare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	71.022 206.685 3.209 1.980 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0	146.683 3.209 1.980 0.000 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$C \$C
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Environmental Mitigation	hectare hectare hectare hectare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	71.022 206.685 3.209 1.980 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0	146.683 3.209 1.980 0.000 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC)	hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$11,166,364 \$408,227 \$291,591 of Line Cost	71.022 206.685 3.209 1.980 0.000 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$53,921,409 \$101,962,907	146.683 3.209 1.980 0.000 0.000 0.000	\$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$53,654,666
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Urronmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications	hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	71.022 206.685 3.209 1.980 0.000 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$10 \$53,921,409 \$101,962,907 \$84,330,224	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$10,412,254 \$86,025,172
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mindeveloped Signalis and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System	hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$11,166,364 \$408,227 \$291,591 of Line Cost	71.022 206.685 3.209 1.980 0.000 0.000 0.000	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$53,921,409 \$101,962,907	146.683 3.209 1.980 0.000 0.000 0.000	\$41,061,966 \$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0 \$53,654,666 \$104,012,254 \$86,025,172 \$8,258,417
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems	hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$53,921,409 \$101,962,907 \$84,330,224 \$8,095,702	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,800 \$4,618,800 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5 \$5
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$6 \$5,654,666 \$104,012,254 \$86,025,172 \$8,258,417
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mindeveloped Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Siectrification I tems 1 Traction Power Distribution	hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$53,921,409 \$101,962,907 \$84,330,224 \$8,095,702	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$6 \$5,618,803 \$6 \$5,618,803 \$6 \$1,02,025 \$1,04,012,254 \$86,025,172 \$8,258,411
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitgation 1 Signaling (ATC) 2 Communications (Wriber Optic Backbone) 3 Wayside Protection System 1 Traction Power Supply 2 Traction Power Distribution (ethicle Costs 1 Fleet Size Estimate	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,45° \$11,229,46° \$4,618,80° \$6 \$5,654,666 \$104,012,25° \$86,025,17° \$8,258,41° \$99,163,56°
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Wironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System Clectrification I tems 1 Traction Power Distribution ehicle Costs 1 Fleet Size Estimate Support Facility Costs	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$1 \$1,529,465 \$1,618,803 \$0 \$1,618,803 \$1,618,803 \$1,618,803 \$1,618,803 \$1,718,919 \$1,103,103,103
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 2 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Lectrification Items 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Storage Yard & Maintenance Facility	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,45° \$11,229,46° \$4,618,80° \$6 \$5,654,666 \$104,012,25° \$86,025,17° \$8,258,41° \$99,163,56°
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communication (Wriber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Distribution lected Costs 1 Fleet Size Estimate upport Facility Costs 1 Storage Yard & Maintenance Facility rogram Implementation Costs	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,455 \$11,229,465 \$4,618,803 \$6 \$5,654,666 \$53,654,666 \$104,012,255 \$86,025,172 \$8,258,417 \$53,179,192 \$99,163,565
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Clectrification I tems 1 Traction Power Distribution ehicle Costs 1 Fleet Size Estimate support Facility Costs 1 Storage Yard & Maintenance Facility Program Implementation Costs 1 Program Implementation Costs	hectare hectare hectare hectare hectare hectare hectare hectare hectare ketare hectare hectare hectare	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$6 \$5,654,666 \$53,654,666 \$104,012,254 \$86,025,172 \$8,258,417 \$53,179,191 \$99,163,562
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 2 Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Storage Yard & Maintenance Facility Program Implementation Costs 1 Program Implementation Costs	hectare hectare hectare hectare hectare hectare hectare hectare hectare km km km km km zm km	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749 \$0	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$C \$5,500 \$5,4666 \$104,012,254 \$86,025,172 \$8,258,417 \$53,179,197 \$99,163,562
Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Uvronmental Impact Mitigation 1 Environmental Mitigation Signalis and Communication 1 Signaling (ATC) 2 Communications (Wriber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 I Storage Yard & Maintenance Facility Program Implementation Costs	hectare hectare hectare hectare hectare hectare hectare hectare hectare km km km km km zm km	\$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	71.022 206.685 3.209 1.980 0.000 0.000 0.000 141.500 141.500	\$28,993,130 \$60,267,505 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$101,962,907 \$84,330,224 \$8,095,702 \$52,131,411 \$97,209,749	146.683 3.209 1.980 0.000 0.000 0.000 144.344 144.344 144.344 144.344	\$42,771,459 \$11,229,465 \$4,618,803 \$0 \$0 \$0 \$10,412,254 \$86,025,172

Alignment	COST ELEMENTS Cost	UNIT	UNIT PRICE	UPRR: Power Inn STO DT St (Alignmer	tation nt A5)	CCT: Power Inn STO DT S (Alignme	tation nt A6)
Track	e Track Section - Total	km		Quantities 135.920	Item Cost	Quantities 139.740	Item Cost
	ble Track Section - At-Grade	km	\$846,282	123.585	\$104,587,774	129.795	\$109,843,186
	ble Track Section - On Structure	km	\$1,600,459	12.335	\$19,741,665	9.945	\$15,916,567
	ble Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
	ble Track Section - In Trench le Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
	ght Double Track	km	\$846,282	0.000	\$0	0.000	\$0
7 Freig	ght Single Track	km	\$423,141	0.000	\$0	0.000	\$0
	r-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
	and Related Items eparation - Undeveloped	Hectares	\$10,294	342.611	\$3,526,869	385.655	\$3,969,961
2 Total C		m3	\$7.59	857,288.0	\$6,502,628	964,896.5	\$7,318,851
3 Total F		m3	\$7.59	857,288.0	\$6,502,628	964,896.5	\$7,318,851
	cape/Erosion Control	Hectares	\$6,881	7.040	\$48,441	5.760	\$39,633
	ty Fencing (Both Sides of R/W) I Drainage Facilities	km	\$86,687 arthwork Cost	123.585	\$10,713,216 \$1,364,689	129.795	\$11,251,543 \$1,494,942
	/Tunnels/Walls	376 OI E	artiiwork cost		\$1,304,007		\$1,474,742
	ard Structure	km	\$11,702,749	8.075	\$94,499,696	6.725	\$78,700,985
2 High St		km	\$14,043,299	0.900	\$12,638,969	0.900	\$12,638,969
	Span Structure way Crossing - Primary	km	\$32,020,021	0.000	\$0	0.000 0.480	\$0
	way Crossing - Firmary way Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	1.530 1.850	\$37,647,180 \$36,445,000	1.930	\$11,810,880 \$38,021,000
	Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	1.030	\$30,443,000	1.730	\$0,021,000
	Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
	e Track Drill & Blast e Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
	c Chamber (Drill & Blast/Mined)	ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
11 Crosso		ea	\$80,782,844		\$0		\$0
12 Cut & 0	Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
13 Trench		km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench	n Long nical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
16 Retaini		km	\$3,749,214	24.360	\$91,330,852	19.560	\$73,334,625
	nment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
	Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Sepa	overcrossing HSR - (Urban)		614 (20 42)	7	£102 200 0F2	10	\$147.204.2E0
	Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	7 36	\$102,399,052 \$198,946,729	10 55	\$146,284,359 \$303,946,391
	Overcrossing HSR - (Undeveloped)	ea	\$931,886	12	\$11,182,627	10	\$9,318,855
7 Street	Undercrossing HSR - (Urban)	ea	\$15,278,589	4	\$61,114,355	3	\$45,835,766
	Undercrossing HSR - (Suburban)	ea	\$5,851,374	20	\$117,027,488	7	\$40,959,621
	Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,195	0	\$0
	Bridging HSR Trench crossing closures	ea ea	\$151,702	0 4	\$0 \$606,809	0 2	\$0 \$303,405
Building It		00	\$101,70Z		\$600,007	_	4000,100
	ediate Passenger Stations	ea	N/A	1		1	
	kton Intermediate Station	ea	\$10,000,000	1	\$10,000,000	1	\$10,000,000
	nal Passenger Stations Tamento Downtown Terminal Station	ea ea	N/A \$224,227,000	1 0	\$0	1 0	\$0
	er Inn Road Terminal Station	ea	\$224,227,000	1	\$224,227,000	1	\$224,227,000
	g - Structure	space	\$14,244	2,338	\$33,302,472	2,338	\$33,302,472
	g - At Grade	space	\$2,042	0	\$0	0	\$0
	tility Relocation Track Relocation (Temporary)	lum I	\$1,083,588	4.400	\$4,767,787	2.400	\$2,600,611
	Track Relocation (Permanent)	km km	\$1,083,588	52.219	\$56,583,603	40.219	\$2,600,611
	Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
	Utility Relocations - Dense Urban	km	\$758,511	9.400	\$7,130,008	7.400	\$5,612,985
	Utility Relocations - Urban	km	\$579,719	11.360	\$6,585,614	14.800	\$8,579,849
	Utility Relocations - Dense Suburban Utility Relocations - Suburban	km km	\$406,345 \$222,071	16.600 38.775	\$6,745,334 \$9,033,466	32.175 48.975	\$13,074,165 \$11,409,774
	Utility Relocations - Suburban Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	38.775 59.780	\$9,033,466 \$712,546	48.975 38.880	\$11,409,774
Right-of-W			V11,717	37.700	\$7.12,540	30.000	ψ103,127
	of-Way Required for Each Segment						
	se Urban	hectare	\$3,499,093	25.550	\$89,401,829	22.510	\$78,764,586
Urba	an se Suburban	hectare hectare	\$2,332,729 \$1,166,364	31.394 25.232	\$73,232,753 \$29,429,706	39.515 83.980	\$92,177,776 \$97,951,280
	se Suburban urban	nectare hectare	\$1,166,364 \$408,227	25.232 113.734	\$29,429,706 \$46,429,341	143.298	\$97,951,280 \$58,498,177
	eveloped	hectare	\$291,591	167.512	\$48,844,881	107.510	\$31,348,835
2 Right-c	of-Way Required for Passenger Station & Parking Facilities						
	se Urban	hectare	\$3,499,093	1.811	\$6,336,858	1.811	\$6,337,732
Urba		hectare hectare	\$2,332,729 \$1,166,364	1.980 0.000	\$4,618,803 \$0	1.980 0.000	\$4,618,803 \$0
	se Suburban urban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
Unde	eveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
Evironmen	tal İmpact Mitigation						
	nmental Mitigation	3% 0	f Line Cost		\$48,271,435		\$48,318,415
1 Signali	d Communication	km	\$720,586	135.920	\$97,942,038	139.740	\$100,694,676
	unications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	135.920	\$97,942,038 \$81,004,693	139.740	\$100,694,676
	de Protection System	km	\$57,213	135.920	\$7,776,451	139.740	\$7,995,006
Electrificat							
	on Power Supply	km	\$368,420	135.920	\$50,075,628	139.740	\$51,482,992
2 Tractio	on Power Distribution	km	\$686,995	135.920	\$93,376,319	139.740	\$96,000,639
	Size Estimate				\$0		\$0
Support Fa	cility Costs						
1 Storage	e Yard & Maintenance Facility						
	mplementation Costs						
	m Implementation Costs	25.5% of Total	Cost and Procurement		\$498,681,423		\$517,300,511
2 Contingence 1 Conting		25% of Total	Construction Cost		\$488,903,356		\$507,157,363
Total Cons		2370 UI 101d	Solisii delioni 60st		\$1,609,047,818		\$1,610,613,848
Total Const	truction and Right of Way				\$1,955,613,422		\$2,028,629,453

				LINUT BBIAT				
		COST ELEMENTS nent Cost	UNIT	UNIT PRICE	UPRR: Power Inn STO DT St (Alignmen	ation at A7)	CCT: Power Inn I STO DT S (Alignme	tation nt A8)
Trac		Double Track Section - Total	km		Quantities 129.440	Item Cost	Quantities 133.260	Item Cost
- 1	_	Double Track Section - At-Grade	km	\$846,282	116.415	\$98,520,101	122.625	\$103,775,513
3		Double Track Section - On Structure	km	\$1,600,459	13.025	\$20,845,662	10.635	\$17,020,564
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
	5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
- (6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0
		Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
(Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
		work and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	330.497	\$3,402,160	373.540	\$3,845,253
		Total Cut	m3	\$7.59	827,001.6	\$6,272,902	934,610.1	\$7,089,125
3	3	Total Fill	m3	\$7.59	827,001.6	\$6,272,902	934,610.1	\$7,089,125
		Landscape/Erosion Control	Hectares	\$6,881	5.760	\$39,633	4.480	\$30,826
		Security Fencing (Both Sides of R/W) Special Drainage Facilities	km	\$86,687	116.415	\$10,091,688	122.625	\$10,630,014
		ures/Tunnels/Walls	5% UI E	Earthwork Cost		\$1,303,964		\$1,434,217
		Standard Structure	km	\$11,702,749	9.525	\$111,468,682	8.175	\$95,669,971
		High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3		Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
		Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	1.530 1.876	\$37,647,180 \$36,957,200	0.480 1.956	\$11,810,880 \$38,533,200
		Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	1.070	\$30,737,200	1.730	\$38,533,200
(Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
		Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
		Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
		Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
		Crossovers	ea	\$80,782,844		\$0		\$0
1	2	Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
		Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
		Trench Long Mechanical & Electrical for Tunnels	km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
		Retaining Walls	km km	\$1,645,723	0.000 21.200	\$0 \$79,483,336	16.400	\$61,487,109
		Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
		Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
		Separations		******				*****
		Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	7 23	\$102,399,052 \$127,104,855	10 42	\$146,284,359 \$232,104,517
		Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	20	\$127,104,833	18	\$16,773,940
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	4	\$61,114,355	3	\$45,835,766
		Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	15	\$87,770,616	2	\$11,702,749
		Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	6	\$5,916,390	3	\$2,958,195
		Street Bridging HSR Trench Minor crossing closures	ea ea	\$151,702	0	\$0 \$910,214	0 4	\$0 \$606,809
		ng Items	ea	\$151,702	0	3710,214	4	\$000,007
		Intermediate Passenger Stations	ea	N/A	1		1	
		Stockton Intermediate Station	ea	\$10,000,000	1	\$10,000,000	1	\$10,000,000
- 12	2	Terminal Passenger Stations Sacramento Downtown Terminal Station	ea	N/A \$224,227,000	1 0	\$0	1 0	\$0
	+	Power Inn Road Terminal Station	ea ea	\$224,227,000	1	\$224,227,000	1	\$224,227,000
3	3	Parking - Structure	space	\$14,244	2,338	\$33,302,472	2,338	\$33,302,472
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		nd Utility Relocation					1	
_		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	2.800 46.969	\$3,034,046 \$50,894,767	0.800 34.969	\$866,870 \$37,891,713
		Single Track Renoval	km	\$1,003,500	0.000	\$30,894,787	0.000	\$37,091,713
		Major Utility Relocations - Dense Urban	km	\$758,511	9.400	\$7,130,008	7.400	\$5,612,985
		Major Utility Relocations - Urban	km	\$579,719	11.360	\$6,585,614	14.800	\$8,579,849
		Major Utility Relocations - Dense Suburban	km	\$406,345	11.500	\$4,672,973	27.075	\$11,001,803
		Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	26.700 70.476	\$6,220,336 \$840,036	36.900 49.576	\$8,596,644 \$590,919
		of-Way	KIII	\$11,717	70.470	\$040,030	47.370	\$370,717
		Right-of-Way Required for Each Segment						
	Ţ	Dense Urban	hectare	\$3,499,093	25.550	\$89,401,829	22.510	\$78,764,586
_	4	Urban Dones Suburban	hectare	\$2,332,729	31.394 17.480	\$73,232,753	39.515 76.228	\$92,177,776 \$88,909,623
+	+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	71.022	\$20,388,049 \$28,993,130	100.586	\$88,909,623 \$41,061,966
+	+	Undeveloped	hectare	\$291,591	206.685	\$60,267,505	146.683	\$42,771,459
	2	Right-of-Way Required for Passenger Station & Parking Facilities						
$\perp \Gamma$	Ţ	Dense Urban	hectare	\$3,499,093	1.811	\$6,336,858	1.811	\$6,337,732
+	4	Urban	hectare	\$2,332,729	1.980 0.000	\$4,618,803	1.980 0.000	\$4,618,803
+	+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0
+	7	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
		mental Impact Mitigation						
		Environmental Mitigation	3% (of Line Cost		\$44,324,995		\$44,371,976
		Is and Communication Signaling (ATC)	l/m	\$720,586	129.440	\$93,272,641	133.260	\$96,025,280
		Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	129.440	\$93,272,641 \$77,142,786	133.260	\$96,025,280 \$79,419,404
		Wayside Protection System	km	\$57,213	129.440	\$7,405,707	133.260	\$7,624,263
Elec	tri	ification Items				•		
		Traction Power Supply	km	\$368,420	129.440	\$47,688,268	133.260	\$49,095,632
		Traction Power Distribution e Costs	km	\$686,995	129.440	\$88,924,593	133.260	\$91,548,913
		Fleet Size Estimate				\$0		\$0
		ort Facility Costs				40		JU
1	1	Storage Yard & Maintenance Facility						
		am Implementation Costs						
		Program Implementation Costs	25.5% of Total	Cost and Procurement		\$460,291,261		\$478,910,349
		ngencies Contingencies	25% of Tota	Il Construction Cost		\$451,265,943		\$469,519,950
		Construction	2376 UI 1018	ii construction COSt		\$1,477,499,848		\$1,479,065,878
Tota								
	al (Construction and Right of Way				\$1,805,063,770		\$1,878,079,801

COST ELEMENTS	UNIT	UNIT PRICE	QUANTIT	
			UPRR: SAC DT Depot t (Alignment A1 NO LE	
lignment Cost			Stockton loop	
rack 1 Double Track Section - Total	km		Quantities 101.980	Item Cost
Double Track Section - At-Grade	km	\$846,282	89.735	\$75,941,12
3 Double Track Section - On Structure	km	\$1,600,459	12.245	\$19,597,62
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$ \$
Single Track Sections - In Tunnel or Subway	km	\$1,000,437	0.000	\$
6 Freight Double Track	km	\$846,282	0.000	\$
7 Freight Single Track	km	\$423,141	0.000	\$
9 Four-track construction or reconstruction arthwork and Related Items	km	\$1,692,564	0.000	\$
1 Site Preparation - Undeveloped	Hectares	\$10,294	235.760	\$2,426,92
2 Total Cut	m3	\$7.59	589,399.0	\$4,470,65
3 Total Fill 6 Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	589,399.0 4.480	\$4,470,65 \$30,82
7 Security Fencing (Both Sides of R/W)	km	\$86,687	89.735	\$7,778,86
8 Special Drainage Facilities	5% of Ea	arthwork Cost		\$958,89
tructures/Tunnels/Walls 1 Standard Structure	km	\$11,702,749	5.295	\$61,966,0
2 High Structure	km	\$14,043,299	5.500	\$77,238,1
3 Long Span Structure	km	\$32,020,021	0.000	
Waterway Crossing - Primary	km	\$24,606,000	1.505	\$37,032,0
Waterway Crossing - Secondary (Irrigation/Canal Crossing) 5 Twin Single Track Drill & Blast (<6 Miles)	km	\$19,700,000 \$62,042,150	1.695	\$33,391,5
6 Twin Single Track Drill & Blast (<6 Miles)	km km	\$63,942,150 \$47,261,589		
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		
8 Double Track Drill & Blast	km	\$71,355,733		
9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km	\$82,012,758 \$80,782,844		
10 Seismic Chamber (Drill & Blast/Milned) 11 Crossovers	ea ea	\$80,782,844 \$80,782,844		
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		
13 Trench Short	km	\$42,322,835	0.000	
14 Trench Long	km	\$33,464,567	0.000	
15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000 21.610	\$81,020,5
17 Containment Walls	km km	\$3,749,214 \$1,278,634	0.000	\$81,020,5
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	
rade Separations			_	
1 Street Overcrossing HSR - (Urban) 2 Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	5 23	\$73,142,1 \$127,104,8
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	10	\$9,318,8
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	2	\$30,557,1
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	13	\$76,067,8
Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea	\$986,065	3 0	\$2,958,1
21 Minor crossing closures	ea ea	\$151,702	3	\$455,1
uilding Items				
Intermediate Passenger Stations Stockton Intermediate Station	ea	N/A \$10,000,000	0	
2 Terminal Passenger Stations	ea ea	\$10,000,000 N/A	1	
Sacramento Downtown Terminal Station	ea	\$224,227,000	1	\$224,227,0
Power Inn Road Terminal Station	ea	\$224,227,000	0	
3 Parking - Structure 4 Parking - At Grade	space space	\$14,244 \$2,042	1,811	\$25,795,8
ail and Utility Relocation	space	\$2,042	0	
1 Single Track Relocation (Temporary)	km	\$1,083,588	1.600	\$1,733,7
2 Single Track Relocation (Permanent)	km	\$1,083,588	32.682	\$35,413,
Single Track Removal Major Utility Relocations - Dense Urban	km	\$54,000	0.000	40 404
4 Major Utility Relocations - Dense Urban 5 Major Utility Relocations - Urban	km km	\$758,511 \$579,719	10.720 8.950	\$8,131,2 \$5,188,4
6 Major Utility Relocations - Orban	km	\$406,345	11.500	\$4,672,9
7 Major Utility Relocations - Suburban	km	\$232,971	23.025	\$5,364,1
8 Major Utility Relocations - Undeveloped	km	\$11,919	49.330	\$587,9
ght-of-Way 1 Right-of-Way Required for Each Segment				
Dense Urban	hectare	\$3,499,093	19.835	\$69,405,2
Urban	hectare	\$2,332,729	13.604	\$31,734,4
Dense Suburban	hectare	\$1,166,364	17.480	\$20,388,0
Suburban Undeveloped	hectare	\$408,227 \$201.501	67.222	\$27,441,8
2 Right-of-Way Required for Passenger Station & Parking Facilities	hectare	\$291,591	136.048	\$39,670,2
Dense Urban	hectare	\$3,499,093	3.209	\$11,229,4
Urban	hectare	\$2,332,729	0.000	
Dense Suburban	hectare	\$1,166,364 \$408,227	0.000	
Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	0.000	
ironmental Impact Mitigation		·		
1 Environmental Mitigation	3% of	f Line Cost		\$38,543,
1 Signaling (ATC)	km	\$720,586	101.980	\$73,485,3
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	101.980	\$60,777,3
3 Wayside Protection System	km	\$57,213	101.980	\$5,834,6
ectrification Items	t	69/0 400	404 000	#27 F7:
1 Traction Power Supply 2 Traction Power Distribution	km km	\$368,420 \$686,995	101.980 101.980	\$37,571,4 \$70,059,7
Phicle Costs	KIII	\$000,773	101.900	\$7U,U3Y,1
1 Fleet Size Estimate				
upport Facility Costs				
1 Storage Yard & Maintenance Facility Togram Implementation Costs				
1 Program Implementation Costs	25.5% of Total C	Cost and Procurement		\$388,411,9
ontingencies		and a superiority		3000,171,7
1 Contingencies	25% of Total	Construction Cost		\$380,796,0
otal Construction				\$1,284,771,60
otal Construction and Right of Way				\$1,523,184,04

COST ELEMENTS	UNIT	UNIT PRICE	QUANTIT	TIES
ignment Cost			UPRR: SAC DT Depot t	
rack			Quantities	Item Cost
Double Track Section - Total Double Track Section - At-Grade	km	¢047, 202	147.980	¢100 (02 2
Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	129.605 18.375	\$109,682,3 \$29,408,4
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$27,400,4
5 Double Track Section - In Trench	km	\$1,600,459	0.000	
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	
6 Freight Double Track	km	\$846,282	0.000	
7 Freight Single Track	km	\$423,141	0.000	
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	
arthwork and Related Items 1 Site Preparation - Undeveloped	Heatene	\$10,294	349.976	£2.402.4
2 Total Cut	Hectares m3	\$10,294	875,699.0	\$3,602,6 \$6,642,2
3 Total Fill	m3	\$7.59	875,699.0	\$6,642,2
6 Landscape/Erosion Control	Hectares	\$6,881	7.040	\$48,4
7 Security Fencing (Both Sides of R/W)	km	\$86.687	129.605	\$11,235,0
8 Special Drainage Facilities		rthwork Cost		\$1,408,5
ructures/Tunnels/Walls				
1 Standard Structure	km	\$11,702,749	10.345	\$121,064,9
2 High Structure	km	\$14,043,299	6.400	\$89,877,
3 Long Span Structure	km	\$32,020,021	0.000	
Waterway Crossing - Primary	km	\$24,606,000	1.530	\$37,647,
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	1.870	\$36,839,0
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592 \$71,255,722		
B Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		
10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782.844		
11 Crossovers	ea	\$80,782,844		
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		
13 Trench Short	km	\$42,322,835	0.000	
14 Trench Long	km	\$33,464,567	0.000	
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	
16 Retaining Walls	km	\$3,749,214	27.010	\$101,266,2
17 Containment Walls	km	\$1,278,634	0.000	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	
ade Separations			<u></u>	
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	10	\$146,284,
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	36	\$198,946,
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	12	\$11,182,
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	5	\$76,392,
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	20	\$117,027,
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,
10 Street Bridging HSR Trench 21 Minor crossing closures	ea	\$151,702	5	\$758,
uilding Items	ea	\$131,702	3	\$730,
1 Intermediate Passenger Stations	ea	N/A	1	
Stockton Intermediate Station	ea	\$10,000,000	1	\$10,000,
2 Terminal Passenger Stations	ea	N/A	1	
Sacramento Downtown Terminal Station	ea	\$224,227,000	1	\$224,227,
Power Inn Road Terminal Station	ea	\$224,227,000	0	
3 Parking - Structure	space	\$14,244	2,338	\$33,302,
4 Parking - At Grade	space	\$2,042	0	
ail and Utility Relocation				
1 Single Track Relocation (Temporary)	km	\$1,083,588	4.000	\$4,334,
2 Single Track Relocation (Permanent)	km	\$1,083,588	57.307	\$62,096,
Single Track Removal Major Utility Relocations - Dense Urban	km	\$54,000	0.000	**
	km	\$758,511	18.120	\$13,744,
5 Major Utility Relocations - Urban 6 Major Utility Relocations - Dense Suburban	km	\$579,719	16.250	\$9,420,4
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	16.600 38.775	\$6,745, \$9,033,
8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	38.775 59.780	\$9,033, \$712,
ght-of-Way	KIII	\$11,717	37.700	\$/12,
1 Right-of-Way Required for Each Segment				
Dense Urban	hectare	\$3,499,093	42.345	\$148,169,
Urban	hectare	\$2,332,729	35.794	\$83,497,
Dense Suburban	hectare	\$1,166,364	25.232	\$29,429,
Suburban	hectare	\$408,227	113.734	\$46,429,
Undeveloped	hectare	\$291,591	167.512	\$48,844,
2 Right-of-Way Required for Passenger Station & Parking Facilities				
Dense Urban	hectare	\$3,499,093	3.209	\$11,229,
Urban	hectare	\$2,332,729	1.980	\$4,618,
Dense Suburban	hectare	\$1,166,364	0.000	
Suburban	hectare	\$408,227	0.000	
Undeveloped	hectare	\$291,591	0.000	
rironmental Impact Mitigation		Har Carl		455.51
1 Environmental Mitigation quals and Communication	3% of	Line Cost		\$55,260,
1 Signaling (ATC)	km	\$720,586	147.980	\$106,632,
2 Communications (w/Fiber Optic Backbone)	km	\$720,586	147.980	\$100,632,
3 Wayside Protection System	km	\$57,213	147.980	\$8,466,
ectrification Items		401,210		ψυ, του,
1 Traction Power Supply	km	\$368,420	147.980	\$54,518,
2 Traction Power Distribution	km	\$686,995	147.980	\$101,661,
ehicle Costs		1223,770		1.51,001,
1 Fleet Size Estimate				
upport Facility Costs				
1 Storage Yard & Maintenance Facility				
rogram Implementation Costs				
		ost and Procurement		\$578,718,
1 Program Implementation Costs	25.5% of Total C	ost and Procurement		
	25.5% of Total C	ost and Procurement		
1 Program Implementation Costs ontingencies 1 Contingencies		Construction Cost		\$567,370,7
1 Program Implementation Costs ontingencies				\$567,370, \$1,842,003,3 \$2,269,483,1

Capital Cost Estimate CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor B: Stockton to Modesto

DESCRIPTION Alignment Cost	UNII	UNIT PRICE		QUANT	THES	
Alignment Cost		0.00.000	"Express Loop"/UP		"Express Loop"/BN	ISF: to Modesto
			Station (Alig		Briggsmore Station	
Track			Quantities	Item Cost	Quantities	Item Cost
1 Double Track Section - Total	km	****	54.570	440.044.475	27.750	**********
Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	49.941 4.629	\$42,264,175 \$7,408,526	23.487 4.263	\$19,876,628 \$6,822,758
4 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$7,408,328	0.000	\$0,022,730
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
9 Four-track construction or reconstruction Earthwork and Related Items	km	\$1,692,564	0.000	\$0	0.000	\$0
1 Site Preparation - Undeveloped	Hectares	\$10,294	150.366	\$1,547,880	70.148	\$722,109
2 Total Cut	m3	\$7.59	375,915.0	\$2,851,358	175,370.0	\$1,330,202
3 Total Fill	m3	\$7.59	375,915.0	\$2,851,358	175,370.0	\$1,330,202
6 Landscape/Erosion Control	Hectares	\$6,881	1.600	\$11,009	1.280	\$8,807
7 Security Fencing (Both Sides of R/W)	km	\$86,687	49.941	\$4,329,237	23.487	\$2,036,018
8 Special Drainage Facilities Structures/Tunnels/Walls	5% of	Earthwork Cost		\$579,542		\$271,367
1 Standard Structure	km	\$11,702,749	4.169	\$48,788,760	3.550	\$41,544,758
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
Waterway Crossing - Primary	km	\$24,606,000	0.460	\$11,318,760	0.150	\$3,690,900
Waterway Crossing - Secondary (Irrigation/Canal Crossing)		\$19,700,000	0.400	\$7,880,000	0.380	\$7,486,000
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
11 Crossovers	ea	\$80,782,844		\$0		\$0
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench Long	km	\$33,464,567				
15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km	\$1,645,723 \$3,749,214	0.000 6.550	\$0 \$24,557,351	0.000 4.500	\$0 \$16,871,463
17 Containment Walls	km km	\$3,749,214 \$1,278,634	0.000	\$24,557,351	0.000	\$16,871,463
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations	1411	\$20;020;707	0.000	4 0	0.000	
Street Overcrossing HSR - (Urban)	ea	\$14,628,436	9	\$131,655,923	0	\$0
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	38	\$209,999,325	10	\$55,262,980
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	1	\$931,886	8	\$7,455,084
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
8 Street Undercrossing HSR - (Suburban) 9 Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	0	\$0 \$0	5	\$29,256,872 \$0
10 Street Bridging HSR Trench	ea	\$400,000	0	\$0	0	\$0
21 Minor crossing closures	ea	\$151,702	0	\$0	1	\$151,702
Building Items			<u>"</u>	<u>"</u>		
1 Intermediate Passenger Stations	ea	N/A	1		1	
Modesto Downtown Intermediate Station	ea	\$165,048,000	1	\$165,048,000	0	\$0
Amtrack Briggsmore Intermediate Station	ea	\$32,430,000	0	\$0	1	\$32,430,000
2 Terminal Passenger Stations 3 Parking - Structure	ea	N/A \$14,244	0 473	\$6,737,412	539	\$7,677,516
4 Parking - At Grade	space space	\$2,042	0	\$0,737,412	0	\$7,077,510
Rail and Utility Relocation	Space	\$2,042	Ü	40	Ü	40
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	1.600	\$1,733,741
2 Single Track Relocation (Permanent)	km	\$1,083,588	25.338	\$27,455,949	4.438	\$4,808,421
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	
5 Major Utility Relocations - Urban	km					\$0
	Law-	\$579,719	15.750	\$9,130,582	0.000	\$0
6 Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	0.000	\$0	5.600	\$0 \$2,275,534
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban	km	\$579,719 \$406,345 \$232,971	0.000 36.744	\$0 \$8,560,301	5.600 14.300	\$0 \$2,275,534 \$3,331,491
6 Major Utility Relocations - Dense Suburban		\$579,719 \$406,345	0.000	\$0	5.600	\$0 \$2,275,534
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment	km	\$579,719 \$406,345 \$232,971 \$11,919	0.000 36.744	\$0 \$8,560,301	5.600 14.300	\$0 \$2,275,534 \$3,331,491
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban	km km hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093	0.000 36.744 2.075	\$0 \$8,560,301 \$24,733 \$0 \$0	5.600 14.300 7.850	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban	km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729	0.000 36.744 2.075 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0	5.600 14.300 7.850 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban	km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364	0.000 36.744 2.075 0.000 0.000 47.880	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526	5.600 14.300 7.850 0.000 0.000 10.640	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban	km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.000 36.744 2.075 0.000 0.000 47.880 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526	5.600 14.300 7.850 0.000 0.000 10.640 41.040	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped	km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364	0.000 36.744 2.075 0.000 0.000 47.880	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526	5.600 14.300 7.850 0.000 0.000 10.640	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban	km km hectare hectare hectare hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities	km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.000 36.744 2.075 0.000 0.000 47.880 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627	5.600 14.300 7.850 0.000 0.000 10.640 41.040	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Urban Urban Dense Suburban	km km hectare hectare hectare hectare hectare hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Suburban Suburban Suburban Suburban Suburban Suburban Urban Suburban Suburban Suburban	hectare hectare hectare hectare hectare hectare hectare hectare hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Undeveloped	km km hectare hectare hectare hectare hectare hectare hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Urban Urban Dense Suburban Undeveloped Evironmental Impact Mitigation	hectare	\$579,719 \$406,545 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Suburban Undeveloped 1 Urban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication	hectare	\$579,719 \$406,545 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	hectare	\$579,719 \$406,545 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 0.000	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Suburban Undeveloped 1 Urban Urban Urban Urban Urban Dense Suburban Urban Urban Dense Suburban Suburban Urban Suburban	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$1,060,364 \$408,227	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784	5.600 14.300 7.850 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$0
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Urban Dense Suburban Evrican Suburban Urban Suburban Urban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items	km km hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 0.000 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$0 \$1,410,412 \$1,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 1 Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban 1 Environmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$39,322,374 \$32,522,264 \$3,122,137	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$10,200 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$1,416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signalis and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Distribution	km km hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 0.000 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$0 \$1,410,412 \$1,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Utrban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban I Dense Suburban Suburban Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$9,416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 1 Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Undeveloped 5 Parking Facilities Dense Urban Urban Dense Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$39,322,374 \$32,522,264 \$3,122,137	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$1,2,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$1,5416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 1 Right-of-Way 1 Right-of-Way Required for Each Segment Dense Suburban Urban Dense Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$9,416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Uurban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Urban Dense Suburban Urban Dense Suburban 1 Lenvironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Fleatility Cost Breakdown	hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$9,416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 1 Right-of-Way 1 Right-of-Way 1 Relght-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Urban Dense Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Costs 1 Facility Costs Breakdown Program Implementation Costs	km km km km hectare kectare hectare hectare hectare hectare	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$9,416,342 \$19,996,259 \$16,538,260 \$1,587,673
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Ender Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Costs 1 Facility Cost Breakdown Program Implementation Costs Contingencies	km km km hectare 1 % km km km km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$1,416,342 \$19,996,259 \$16,538,260 \$1,587,673 \$10,223,651 \$10,223,651
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 1 Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communication (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Supply 3 Program Implementation Costs 1 Fleetlity Cost Breakdown Program Implementation Costs Contingencies 1 Contingencies	km km km hectare 1 % km km km km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$39,322,374 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301 \$0 \$0 \$246,122,409	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$10,500 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$14,416,342 \$119,996,259 \$16,538,260 \$1,587,673 \$10,223,651 \$10,223,651 \$10,996,776
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped Right-of-Way 1 Right-of-Way Required for Each Segment Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Ender Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Costs 1 Facility Cost Breakdown Program Implementation Costs Contingencies	km km km hectare 1 % km km km km km	\$579,719 \$406,345 \$232,971 \$11,919 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 36.744 2.075 0.000 0.000 47.880 0.000 113.003 0.000 1.930 0.000 0.000 0.000 54.570 54.570 54.570	\$0 \$8,560,301 \$24,733 \$0 \$0 \$0 \$0 \$55,845,526 \$0 \$32,950,627 \$0 \$4,502,166 \$0 \$0 \$0 \$25,394,784 \$32,522,264 \$3,122,137 \$20,104,672 \$37,489,301	5.600 14.300 7.850 0.000 0.000 0.000 10.640 41.040 23.864 0.000 2.267 0.000 0.000 0.000 0.000 27.750 27.750 27.750	\$0 \$2,275,534 \$3,331,491 \$93,568 \$0 \$0 \$0 \$12,410,117 \$16,753,654 \$6,958,528 \$0 \$5,288,296 \$0 \$0 \$1,416,342 \$19,996,259 \$16,538,260 \$1,587,673 \$10,223,651 \$10,223,651 \$10,223,651

Capital Cost Estimate CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor B: Stockton to Modesto

DESCRIPTION Alignment Cost			Modesto	
Alignment Cost	UNIT	UNIT PRICE	QUANTI	
Alignment Cost			"Express Loop"/UPR	
			Station (Alignmen	
Track 1 Double Track Section - Total	km		Quantities 30.400	Item Cost
Double Track Section - At-Grade Double Track Section - At-Grade	km	\$846,282	26.890	\$22,756,526
3 Double Track Section - On Structure	km	\$1,600,459	3.510	\$5,617,612
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0
6 Freight Double Track	km	\$846,282	0.000	\$0
7 Freight Single Track	km	\$423,141	0.000	\$0
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0
arthwork and Related Items		440.004	00.040	4050 7/0
1 Site Preparation - Undeveloped 2 Total Cut	Hectares	\$10,294	82.840	\$852,762 \$1,570,877
3 Total Fill	m3 m3	\$7.59 \$7.59	207,100.0 207,100.0	\$1,570,877
6 Landscape/Erosion Control	Hectares	\$6,881	0.640	\$4,404
7 Security Fencing (Both Sides of R/W)	km	\$86,687	26.890	\$2,331,014
Special Drainage Facilities		rthwork Cost	20.070	\$316,497
tructures/Tunnels/Walls			<u> </u>	
1 Standard Structure	km	\$11,702,749	3.150	\$36,863,659
2 High Structure	km	\$14,043,299	0.000	\$0
3 Long Span Structure	km	\$32,020,021	0.000	\$0
Waterway Crossing - Primary	km	\$24,606,000	0.360	\$8,858,160
Waterway Crossing - Secondary (Irrigation/Canal Crossing)		\$19,700,000	0.170	\$3,349,000
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0
8 Double Track Drill & Blast	km	\$71,355,733		\$0
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0 \$0
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0
12 Cut & Cover Double Track Tunnel 13 Trench Short	km km		0.000	\$0 \$0
14 Trench Long	km	\$42,322,835 \$33,464,567	0.000	\$0
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0
16 Retaining Walls	km	\$3,749,214	2.800	\$10,497,799
17 Containment Walls	km	\$1,278,634	0.000	\$10,497,799
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0
rade Separations	KIII	\$25,020,707	0.000	\$0
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	9	\$131,655,923
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	12	\$66,315,576
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0
10 Street Bridging HSR Trench	ea		0	\$0
21 Minor crossing closures	ea	\$151,702	0	\$0
uilding Items		<u> </u>	<u>, </u>	
1 Intermediate Passenger Stations	ea	N/A	1	
Modesto Downtown Intermediate Station	ea	\$165,048,000	1	\$165,048,000
Amtrack Briggsmore Intermediate Station	ea	\$32,430,000	0	\$0
2 Terminal Passenger Stations	ea	N/A	0	
3 Parking - Structure 4 Parking - At Grade	space	\$14,244	473	\$6,737,412
ail and Utility Relocation	space	\$2,042	0	\$0
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0
2 Single Track Relocation (Permanent)	km	\$1,083,588	25.338	\$27,455,949
3 Single Track Removal	km	\$54,000	0.000	\$27,433,747
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0
5 Major Utility Relocations - Urban	km	\$579,719	15.750	\$9,130,582
6 Major Utility Relocations - Orban 6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$9,130,382
7 Major Utility Relocations - Suburban	km	\$232,971	14.650	\$3,413,031
Major Utility Relocations - Undeveloped Major Utility Relocations - Undeveloped	km	\$11,919	0.000	\$0,413,031
ight-of-Way	801	2.1///	5.555	
				\$0
1 Right-of-Way Required for Each Segment			· ·	30
1 Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	
	hectare hectare	\$3,499,093 \$2,332,729	0.000 0.000	\$0
Dense Urban				\$0 \$0
Dense Urban Urban	hectare	\$2,332,729	0.000	\$0 \$0 \$55,845,526
Dense Urban Urban Dense Suburban Suburban Undeveloped	hectare hectare	\$2,332,729 \$1,166,364	0.000 47.880	\$0 \$0 \$55,845,526
Dense Urban Urban Dense Suburban Suburban	hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	0.000 47.880 0.000	\$0 \$0 \$55,845,526 \$0
Dense Urban Urban Dense Suburban Suburban Undeveloped	hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	0.000 47.880 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011
Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 47.880 0.000 43.928	\$0 \$0 \$55,845,526 \$0 \$12,809,011
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban	hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0.000 47.880 0.000 43.928 0.000 1.930 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011
Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban	hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729	0.000 47.880 0.000 43.928 0.000 1.930	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166
Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped	hectare hectare hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0.000 47.880 0.000 43.928 0.000 1.930 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166
Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Undeveloped	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0
Dense Urban Urban Dense Suburban Suburban Undeveloped Perse Urban Undeveloped Dense Urban Urban Urban Urban Urban Urban Urban Urban Urban Suburban Suburban Suburban Indeveloped Urronmental Impact Mitigation	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0
Dense Urban Urban Dense Suburban Suburban Undeveloped Porse Urban Undeveloped Robert Dense Urban Urban Urban Urban Dense Suburban Urban Urban Dense Suburban Suburban Undeveloped Undeveloped Undeveloped Undeveloped Urionmental Impact Mitigation I Environmental Mitigation I Environmental Mitigation I Environmental Mitigation I Environmental Mitigation Ignals and Communication	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000	\$0 \$55,845,526 \$55,845,526 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789
Dense Urban Urban Dense Suburban Suburban Undeveloped Porse Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation In Environmental Mitigation Ingals and Communication I Signaling (ATC)	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-Of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 1 Isnyironmental Mitigation 2 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000	\$0 \$0 \$55,845,26 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589
Dense Urban Urban Dense Suburban Suburban Suburban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Indeveloped Urionmental Impact Mitigation 1 Environmental Impact Mitigation 1 Signaling (ATC) Communications (w/Fiber Optic Backbone) 3 Wayside Protection System	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789
Dense Urban Urban Dense Suburban Suburban Undeveloped Porse Urban Urban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation Intervironmental Miti	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400	\$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,569 \$1,739,289
Dense Urban Urban Dense Suburban Suburban John Suburban Lindeveloped Right-Or-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification Items 1 Traction Power Supply	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289
Dense Urban Urban Dense Suburban Suburban Undeveloped Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Dense Suburban Suburban Indeveloped Vironmental Impact Mitigation I Environmental Mitigation I Environmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System I Traction Power Supply Traction Power Supply Traction Power Distribution	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289
Dense Urban Urban Dense Suburban Suburban Undeveloped Pight-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation Intervironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Steet Traction Power Supply Traction Power Distribution Pictic Costs	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-Of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 1 Isnivronmental Mitigation 2 Communication 1 Signaling (ATC) 3 Wayside Protection System lectrification Items 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution ehicle Costs	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$55,845,526 \$50 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Impact Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (WrFiber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Fleet Size Estimate upport Facility Costs	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation I Environmental Mitigation Signaling (ATC) Communication (W/Fiber Optic Backbone) Wayside Protection System I Traction Power Supply Traction Power Supply Traction Power Distribution Piet Size Estimate Urban Urba	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$17,345,789 \$17,379,289
Dense Urban Urban Dense Suburban Suburban Undeveloped 2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped vironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communication (WFiber Optic Backbone) 3 Wayside Protection System lectrification Items 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Fleet Size Estimate upport Facility Cost Breakdown rogram Implementation Costs	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$0 \$17,345,789 \$17,345,789 \$17,395,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Impact Mitigation 2 Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Supply 1 Fleet Size Estimate Upport Facility Costs 1 Facility Cost Breakdown Togram Implementation Costs	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$55,845,526 \$50 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation I Environmental Mitigation Signaling (ATC) Communication (WFiber Optic Backbone) 3 Wayside Protection System Incettrification Items 1 Traction Power Supply 2 Traction Power Distribution Piet Size Estimate Support Facility Costs 1 Facility Costs 1 Facility Cost Breakdown Program Implementation Costs I Program Implementation Costs I Program Implementation Costs Contingencies	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,64 \$20,884,639
Dense Urban Urban Dense Suburban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Wironmental Impact Mitigation 1 Environmental Mitigation 1 Signalia (ATC) 2 Communication (w/Fiber Optic Backbone) 3 Wayside Protection System 1 Traction Power Supply 2 Traction Power Supply 1 Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown Program Implementation Costs Contingencies 1 Program Implementation Costs Contingencies 1 Contingencies	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$17,345,789 \$11,199,964 \$20,884,639 \$0 \$170,517,338
Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Impact Mitigation I Environmental Mitigation Signals and Communication I Signaling (ATC) Communications (WFiber Optic Backbone) 3 Wayside Protection System Electrification Items I Traction Power Distribution //ehicle Costs I Fleet Size Estimate Support Facility Costs I Facility Cost Breakdown roogram Implementation Costs I Program Implementation Costs I Program Implementation Costs Contingencies	hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 47.880 0.000 43.928 0.000 1.930 0.000 0.000 0.000 30.400 30.400 30.400	\$0 \$0 \$55,845,526 \$0 \$12,809,011 \$0 \$4,502,166 \$0 \$0 \$17,345,789 \$21,905,812 \$18,117,589 \$1,739,289 \$11,199,964 \$20,884,639

DESCRIPTION	UNIT	UNIT PRICE		QUANTIT	TIES		
Alignment Cost				I DT Station	UPRR: to Merced DT Station (Alignment C2)		
Track 1 Double Track Section - Total	km	T	59.600	Item Cost	80.146	Item Cost	
2 Double Track Section - At-Grade	km	\$846,282	48.484	\$41,031,142	68.655	\$58,101,498	
3 Double Track Section - On Structure	km	\$1,600,459	11.116	\$17,790,705	11.491	\$18,390,877	
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0	
5 Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0	
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0	
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0	
Earthwork and Related Items		440.004	404.007	A4 050 440	407.705	A4 000 700	
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	131.936 329,840.0	\$1,358,160 \$2,501,874	186.785 466,989.6	\$1,922,783 \$3,542,170	
3 Total Fill	m3	\$7.59	329,840.0	\$2,501,874	466,989.6	\$3,542,170	
6 Landscape/Erosion Control	Hectares	\$6,881	1.280	\$8,807	1.280	\$8,807	
7 Security Fencing (Both Sides of R/W)	km	\$86,687	48.484	\$4,202,934	68.655	\$5,951,498	
8 Special Drainage Facilities Structures/Tunnels/Walls	5% of	f Earthwork Cost		\$528,683		\$748,371	
1 Standard Structure	km	\$11,702,749	6.650	\$77,823,279	6.650	\$77,823,279	
2 High Structure	km	\$14,043,299	4.200	\$58,981,854	4.200	\$58,981,854	
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	\$0	
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.521	\$10,263,700	1.031	\$20,310,700	
5 Twin Single Track Drill & Blast (<6 Miles) 6 Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0	
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$47,261,589		\$0 \$0		\$0	
8 Double Track Drill & Blast	km	\$71,355,733		\$0		\$0	
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0	
11 Crossovers	ea	\$80,782,844		\$0		\$0	
12 Cut & Cover Double Track Tunnel 13 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0	
13 Trench Snort 14 Trench Long	km	\$42,322,835 \$33,464,567	0.000	\$0	0.000	\$0	
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0	
16 Retaining Walls	km	\$3,749,214	3.700	\$13,872,092	3.700	\$13,872,092	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0	
Grade Separations 1 Street Overcrossing HSR - (Urban)							
. ,	ea	\$14,628,436	2	\$29,256,872	2	\$29,256,872	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	23	\$127,104,855	27	\$149,210,047	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	1	\$931,886	15	\$13,978,283	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	9	\$137,507,298	9	\$137,507,298	
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	7	\$40,959,621	7	\$40,959,621	
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,195	3	\$2,958,195	
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0	
21 Minor crossing closures	ea	\$151,702	4	\$606,809	4	\$606,809	
Building Items							
1 Intermediate Passenger Stations	ea	N/A	1	400 400 000	1	400 400 000	
Merced Downtown Intermediate Station Merced Municipal Airport Intermediate Station	ea ea	\$32,430,000 \$32,430,000	1 0	\$32,430,000 \$0	1 0	\$32,430,000 \$0	
Castle Air Force Base Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
2 Terminal Passenger Stations	ea	N/A	0		0		
3 Parking - Structure	space	\$14,244	144	\$2,051,136	144	\$2,051,136	
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
Rail and Utility Relocation 1 Single Track Relocation (Temporary)	km	\$1,083,588	6.400	\$6,934,962	6.400	\$6,934,962	
2 Single Track Relocation (Permanent)	km	\$1,083,588	8.313	\$9,007,866	8.313	\$9,007,866	
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0	
4 Major Utility Relocations - Dense Urban	km	\$758,511	1.950	\$1,479,097	1.950	\$1,479,097	
5 Major Utility Relocations - Urban	km	\$579,719	2.550	\$1,478,285	2.550	\$1,478,285	
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	8.050 39.600	\$3,271,081 \$9,225,667	8.050 44.100	\$3,271,081 \$10,274,038	
Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km	\$11,919	7.450	\$8,800	23.496	\$280,060	
Right-of-Way				+=3,000	23.170	+200,000	
1 Right-of-Way Required for Each Segment							
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban Pensa Suburban	hectare	\$2,332,729	5.928	\$13,828,416	2.964	\$6,914,208	
Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	19.988 99.864	\$23,313,291 \$40,767,226	16.112 112.784	\$18,792,463 \$46,041,524	
Undeveloped	hectare	\$291,591	22.648	\$6,603,954	71.428	\$20,827,718	
Right-of-Way Required for Passenger Station & Parking Facilities							
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban	hectare	\$2,332,729	0.700	\$1,632,910	0.700	\$1,632,910	
Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0	
Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0	
Environmental Impact Mitigation		/1/0//1	2.000	4 0	3.000	30	
1 Environmental Mitigation	3%	6 of Line Cost		\$23,428,113		\$26,987,082	
Signals and Communication							
1 Signaling (ATC)	km	\$720,586	59.600	\$42,946,921	80.146	\$57,752,079	
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	59.600	\$35,520,010	80.146	\$47,764,877	
3 Wayside Protection System Electrification I tems	km	\$57,213	59.600	\$3,409,921	80.146	\$4,585,428	
1 Traction Power Supply	km	\$368,420	59.600	\$21,957,824	80.146	\$29,527,379	
2 Traction Power Supply 2 Traction Power Distribution	km	\$686,995	59.600	\$21,957,824 \$40,944,884	80.146	\$29,527,379 \$55,059,877	
Vehicle Costs		3000,770	57.555	\$. = / / 1 1/00 T	55.115	100,007,077	
1 Fleet Size Estimate				\$0		\$0	
Support Facility Costs	•						
1 Facility Cost Breakdown							
Program Implementation Costs							
1 Program Implementation Costs	25.5% of Total	al Cost and Procurement		\$227,080,305		\$260,295,150	
Contingencies							
1 Contingencies	25% of To	otal Construction Cost		\$222,627,750		\$255,191,323	
Total Construction				\$780,937,092		\$899,569,389	
				4000 E44 004		44 000 7/5 004	
Total Construction and Right of Way Grand Total				\$890,511,001 \$1,340,219,057		\$1,020,765,294 \$1,536,251,767	

DESCRIPTION	UNIT	UNIT PRICE		QUANTI	TIES		
Alignment Cost			UPRR: to Merced	nt C3)	UPRR: to Merced DT Station (Alignment C4)		
Track 1 Double Track Section - Total	km		59.614	Item Cost	80.655	Item Cost	
2 Double Track Section - At-Grade	km	\$846,282	48.564	\$41,098,844	69.105	\$58,482,325	
3 Double Track Section - On Structure	km	\$1,600,459	11.050	\$17,685,075	11.550	\$18,485,304	
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0	
5 Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0	
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0	
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0	
Earthwork and Related Items		440.004	404.070	A4 050 500	405.405	44 004 007	
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	131.979 329,946.4	\$1,358,598 \$2,502,681	185.185 462,988.2	\$1,906,307 \$3,511,819	
3 Total Fill	m3	\$7.59	329,946.4	\$2,502,681	462,988.2	\$3,511,819	
6 Landscape/Erosion Control	Hectares	\$6,881	1.280	\$8,807	1.920	\$13,211	
7 Security Fencing (Both Sides of R/W)	km	\$86,687	48.564	\$4,209,869	69.105	\$5,990,507	
8 Special Drainage Facilities	5% o	f Earthwork Cost		\$529,132		\$746,683	
Structures/Tunnels/Walls 1 Standard Structure	km	\$11,702,749	6.650	\$77,823,279	6.900	\$80,748,966	
2 High Structure	km	\$14,043,299	4.200	\$58,981,854	4.200	\$58,981,854	
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	\$0	
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.430	\$8,471,000	0.815	\$16,055,500	
5 Twin Single Track Drill & Blast (<6 Miles) 6 Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0	
7 Twin Single Track TBM (<6 Miles) 7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$47,261,589		\$0 \$0		\$0 \$0	
8 Double Track Drill & Blast	km	\$71,355,733		\$0		\$0	
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0	
11 Crossovers	ea	\$80,782,844		\$0		\$0	
12 Cut & Cover Double Track Tunnel 13 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0	
14 Trench Long	km km	\$42,322,835 \$33,464,567	0.000	\$0	0.000	\$0	
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0	
16 Retaining Walls	km	\$3,749,214	3.700	\$13,872,092	6.850	\$25,682,116	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0	
Grade Separations	1						
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	2	\$29,256,872	2	\$29,256,872	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	24	\$132,631,153	27	\$149,210,047	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	1	\$931,886	13	\$12,114,512	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	9	\$137,507,298	9	\$137,507,298	
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	7	\$40,959,621	7	\$40,959,621	
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	2	\$1,972,130	2	\$1,972,130	
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0	
21 Minor crossing closures	ea	\$151,702	4	\$606,809	4	\$606,809	
Building Items							
Intermediate Passenger Stations Merced Downtown Intermediate Station	ea ea	N/A \$32,430,000	1	\$32,430,000	1	\$32,430,000	
Merced Municipal Airport Intermediate Station	ea	\$32,430,000	0	\$32,430,000	0	\$32,430,000	
Castle Air Force Base Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
2 Terminal Passenger Stations	ea	N/A	0		0		
3 Parking - Structure	space	\$14,244	144	\$2,051,136	144	\$2,051,136	
4 Parking - At Grade Rail and Utility Relocation	space	\$2,042	0	\$0	0	\$0	
1 Single Track Relocation (Temporary)	km	\$1,083,588	6.000	\$6,501,527	6.000	\$6,501,527	
2 Single Track Relocation (Permanent)	km	\$1,083,588	8.313	\$9,007,866	8.313	\$9,007,866	
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0	
4 Major Utility Relocations - Dense Urban	km	\$758,511	1.950	\$1,479,097	1.950	\$1,479,097	
5 Major Utility Relocations - Urban	km	\$579,719	2.550	\$1,478,285	2.550	\$1,478,285	
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	8.050 41.114	\$3,271,081 \$9,578,386	8.050 45.614	\$3,271,081 \$10,626,757	
Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km	\$11,919	5.950	\$7,576,366	22.493	\$268,105	
Right-of-Way				,	W. C. C. W.	,,	
1 Right-of-Way Required for Each Segment							
Dense Urban	hectare	\$3,499,093	5.928	\$20,742,624	2.964	\$10,371,312	
Urban Papas Suburban	hectare	\$2,332,729	7.752	\$18,083,313	3.876	\$9,041,657	
Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	12.236 104.467	\$14,271,634 \$42,646,117	12.236 117.387	\$14,271,634 \$47,920,416	
Undeveloped	hectare	\$291,591	18.088	\$5,274,299	65.605	\$19,129,748	
2 Right-of-Way Required for Passenger Station & Parking Facilities						,127,710	
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban	hectare	\$2,332,729	0.700	\$1,632,910	0.700	\$1,632,910	
Dense Suburban Suburban	hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0	
Undeveloped	hectare hectare	\$408,227 \$291,591	0.000	\$0 \$0	0.000	\$0	
Environmental Impact Mitigation	nectare	\$271,371	0.000	\$0	0.000	ΨΟ	
1 Environmental Mitigation	39	6 of Line Cost		\$23,507,746		\$27,263,509	
Signals and Communication							
1 Signaling (ATC)	km	\$720,586	59.614	\$42,957,009	80.655	\$58,118,857	
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	59.614	\$35,528,353	80.655	\$48,068,228	
3 Wayside Protection System	km	\$57,213	59.614	\$3,410,722	80.655	\$4,614,550	
Electrification Items 1 Traction Power Supply	km	\$368,420	59.614	\$21,962,982	80.655	\$29,714,904	
2 Traction Power Supply 2 Traction Power Distribution	km km	\$368,420 \$686,995	59.614	\$21,962,982 \$40,954,502	80.655	\$29,714,904 \$55,409,557	
Vehicle Costs		+===,//	2011	+, 1,00E	20.000	+==,107,007	
1 Fleet Size Estimate				\$0		\$0	
Support Facility Costs		<u> </u>					
1 Facility Cost Breakdown							
Program Implementation Costs							
1 Program Implementation Costs	25.5% of Tot	al Cost and Procurement		\$231,986,299		\$264,795,783	
Contingencies							
1 Contingencies	25% of To	otal Construction Cost		\$227,437,548		\$259,603,709	
Total Construction				\$783,591,547		\$908,783,649	
Tatal Canatanatian and Digital of Man				¢000 750 101		\$1,038,414,836	
Total Construction and Right of Way				\$909,750,191 \$1,369,174,037		\$1,038,414,630	

	DESCRIPTION	UNIT	UNIT PRICE		QUANTIT	TIES		
	nent Cost	(Al		(Alignme	BNSF: to Merced DT Station (Alignment C5)		BNSF: to Merced DT Station (Alignment C6)	
Track			T T	Item	Item Cost	Item	Item Cost	
2	Oouble Track Section - Total Double Track Section - At-Grade	km km	\$846,282	65.236 61.246	\$51,831,563	84.739 80.314	\$67,968,640	
3	Double Track Section - On Structure	km	\$1,600,459	3.990	\$6,385,192	4.425	\$7,081,392	
5	Double Track Section - In Tunnel or Subway Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000 0.000	\$0 \$0	
3	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0	
6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0	
7	Freight Single Track Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.000	\$0 \$0	0.000	\$0 \$0	
	vork and Related Items	NIII	\$1,072,001	0.000	Ų0	0.000	40	
	ite Preparation - Undeveloped	Hectares	\$10,294	188.969	\$1,945,267	236.776	\$2,437,397	
	otal Cut otal Fill	m3 m3	\$7.59 \$7.59	472,423.6 472,423.6	\$3,583,387 \$3,583,387	591,941.2 591,941.2	\$4,489,942 \$4,489,942	
	andscape/Erosion Control	Hectares	\$6,881	0.320	\$2,202	0.960	\$6,606	
7 5	Security Fencing (Both Sides of R/W)	km	\$86,687	61.246	\$5,309,251	80.314	\$6,962,217	
	Special Drainage Facilities	5% of	f Earthwork Cost		\$721,175		\$919,305	
	ures/Tunnels/Walls Standard Structure	km	\$11,702,749	2.400	\$28,086,597	2.600	\$30,427,147	
	ligh Structure	km	\$14,043,299	0.000	\$0	0.000	\$0	
	ong Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
	Vaterway Crossing - Primary Vaterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.250 0.596	\$6,151,500 \$11,741,200	0.250 0.901	\$6,151,500 \$17,749,700	
	when single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.570	\$11,741,200	0.901	\$17,749,700	
6	win Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0	
	win Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km	\$67,185,592 \$71,255,722		\$0 \$0		\$0 \$0	
	Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0	
10 9	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0	
	Crossovers	ea	\$80,782,844		\$0		\$0	
	cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0	
14	rench Long	km	\$33,464,567	0.000	\$∪	0.000	Φ0	
15 [Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0	
	Retaining Walls Containment Walls	km	\$3,749,214	1.600 0.000	\$5,998,742	4.800 0.000	\$17,996,227	
	Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0.000	\$0 \$0	0.000	\$0 \$0	
	Separations		,					
1 5	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	3	\$43,885,308	3	\$43,885,308	
2 5	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	25	\$138,157,451	32	\$176,841,537	
3 5	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	13	\$12,114,512	20	\$18,637,711	
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	8	\$122,228,709	8	\$122,228,709	
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	11	\$64,365,118	11	\$64,365,118	
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,195	3	\$2,958,195	
	Street Bridging HSR Trench	ea		0	\$0	0	\$0	
	Ainor crossing closures	ea	\$151,702	4	\$606,809	4	\$606,809	
	ng Items ntermediate Passenger Stations	ea	N/A	1		1		
	Merced Downtown Intermediate Station	ea	\$32,430,000	1	\$32,430,000	1	\$32,430,000	
	Merced Municipal Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
2 -	Castle Air Force Base Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
	erminal Passenger Stations Parking - Structure	ea space	N/A \$14,244	0 144	\$2,051,136	0 144	\$2,051,136	
4	Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
	d Utility Relocation							
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	8.400 1.250	\$9,102,138 \$1,354,485	8.400 1.250	\$9,102,138 \$1,354,485	
	Single Track Removal	km	\$54,000	0.000	\$1,334,463	0.000	\$1,334,483	
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	7.000 3.700	\$4,058,036 \$1,503,478	7.000 3.700	\$4,058,036 \$1,503,478	
	Najor Utility Relocations - Dense Suburban Najor Utility Relocations - Suburban	km	\$232,971	29.736	\$6,927,637	38.736	\$1,503,478	
8 1	Major Utility Relocations - Undeveloped	km	\$11,919	24.800	\$295,603	35.301	\$420,769	
	of-Way							
1 1	Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
+	Urban Urban	hectare	\$2,332,729	20.596	\$48,044,881	12.160	\$28,365,982	
	Dense Suburban	hectare	\$1,166,364	11.248	\$13,119,266	11.248	\$13,119,266	
+	Suburban Undovoloped	hectare	\$408,227 \$201,501	85.381	\$34,855,047	110.005	\$44,907,240	
2 1	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	hectare	\$291,591	73.264	\$21,363,126	105.187	\$30,671,598	
ٔ لُلُ	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
\Box	Urban	hectare	\$2,332,729	0.745	\$1,736,717	0.700	\$1,632,910	
+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000 0.000	\$0 \$0	0.000 0.000	\$0 \$0	
	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0 \$0	
	nmental Impact Mitigation							
	nvironmental Mitigation	3%	6 of Line Cost		\$21,775,442		\$25,859,842	
	s and Communication	1	\$700 FO/	/5.00/	£47.007.000	01700	A/4 0/4 70"	
	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	65.236 65.236	\$47,007,999 \$38,878,796	84.739 84.739	\$61,061,730 \$50,502,183	
3 \	Vayside Protection System	km	\$57,213	65.236	\$3,732,364	84.739	\$4,848,210	
	fication Items							
	Traction Power Supply	km	\$368,420	65.236	\$24,034,165	84.739	\$31,219,531	
	Traction Power Distribution	km	\$686,995	65.236	\$44,816,649	84.739	\$58,215,243	
	leet Size Estimate				\$0		\$0	
	rt Facility Costs				**			
	acility Cost Breakdown							
	m Implementation Costs							
1 1	Program Implementation Costs	25.5% of Tota	al Cost and Procurement		\$221,019,345		\$256,670,647	
Canti								
	gencies	259/ of To	ntal Construction Cost		\$214 ARA A1C\$	Т	\$251 427 000	
1 (25% of To	otal Construction Cost	L	\$216,685,633 \$725,848,052		\$251,637,889 \$861,994,720	
1 (Total (gencies Contingencies	25% of To	otal Construction Cost					

		DESCRIPTION	UNIT	UNIT PRICE		QUANTIT	TES		
		nent Cost			BNSF: to Merced DT Station (Alignment C7)		BNSF: to Merced DT Station (Alignment C8)		
Trac				T T	Item	Item Cost	Item	Item Cost	
	2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	65.250 61.326	\$51,899,266	85.248 80.764	\$68,349,467	
	3	Double Track Section - On Structure	km	\$1,600,459	3.924	\$6,279,562	4.484	\$7,175,819	
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0	
	5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0	
	6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0	
	7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0	
	9 thy	Four-track construction or reconstruction work and Related Items	km	\$1,692,564	0.000	\$0	0.000	\$0	
		Site Preparation - Undeveloped	Hectares	\$10,294	189.012	\$1,945,706	235.176	\$2,420,921	
	2	Total Cut	m3	\$7.59	472,530.0	\$3,584,194	587,939.8	\$4,459,591	
		Total Fill	m3	\$7.59	472,530.0	\$3,584,194	587,939.8	\$4,459,591	
		Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.320 61.326	\$2,202 \$5,316,186	1.600 80.764	\$11,009 \$7,001,226	
		Special Drainage Facilities		f Earthwork Cost	01.320	\$721,624	00.704	\$917,617	
		ures/Tunnels/Walls							
		Standard Structure	km	\$11,702,749	2.400	\$28,086,597	2.850	\$33,352,834	
		High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000	\$0 \$0	0.000	\$0 \$0	
		Waterway Crossing - Primary	km	\$24,606,000	0.250	\$6,151,500	0.250	\$6,151,500	
		Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.505	\$9,948,500	0.685	\$13,494,500	
		Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0	
		Twin Single Track TBM (<6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$47,261,589		\$0		\$0 \$0	
	8 [Double Track Drill & Blast	km	\$71,355,733		\$0		\$0	
		Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
		Seismic Chamber (Drill & Blast/Mined) Crossovers	ea ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0	
		Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0	
1	13	Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0	
		Trench Long	km	\$33,464,567 \$1,645,723	0.000	60	0.000	\$0	
		Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723	1.600	\$0 \$5,998,742	7.950	\$29,806,251	
		Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
		Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0	
		Separations							
_	_	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	3	\$43,885,308	3	\$43,885,308	
		Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	26	\$143,683,749	32	\$176,841,537	
_	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	13	\$12,114,512	18	\$16,773,940	
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	8	\$122,228,709	8	\$122,228,709	
_	_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	11	\$64,365,118	11	\$64,365,118	
		Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea	\$986,065	0	\$1,972,130	0	\$1,972,130 \$0	
_	_	Minor crossing closures	ea ea	\$151,702	4	\$0 \$606,809	4	\$606,809	
_	_	ng Items	ea	\$131,702	4	\$000,007	4	\$000,007	
		Intermediate Passenger Stations	ea	N/A	1		1		
		Merced Downtown Intermediate Station	ea	\$32,430,000	1	\$32,430,000	1	\$32,430,000	
	_	Merced Municipal Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
	2 -	Castle Air Force Base Intermediate Station Terminal Passenger Stations	ea	\$32,430,000 N/A	0	\$0	0	\$0	
	3 F	Parking - Structure	space	\$14,244	144	\$2,051,136	144	\$2,051,136	
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
		nd Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	8.000	\$8,668,703	8.000	\$8,668,703	
		Single Track Relocation (Temporary)	km	\$1,083,588	1.250	\$1,354,485	1.250	\$1,354,485	
	3 5	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0	
		Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
		Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	7.000 3.700	\$4,058,036 \$1,503,478	7.000 3.700	\$4,058,036 \$1,503,478	
		Major Utility Relocations - Suburban	km	\$232,971	31.250	\$7,280,356	40.250	\$9,377,098	
	8	Major Utility Relocations - Undeveloped	km	\$11,919	23.300	\$277,724	34.298	\$408,814	
		of-Way							
+	1	Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
\dashv	+	Urban Urban	nectare hectare	\$3,499,093	20.596	\$48,044,881	12.160	\$28,365,982	
	1	Dense Suburban	hectare	\$1,166,364	11.248	\$13,119,266	11.248	\$13,119,266	
_	4	Suburban	hectare	\$408,227	89.984	\$36,733,939	114.608	\$46,786,131	
+	2 1	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	hectare	\$291,591	68.704	\$20,033,470	99.364	\$28,973,628	
-	- 1	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
	1	Urban	hectare	\$2,332,729	0.745	\$1,736,717	0.700	\$1,632,910	
- -	4	Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0	
+	+	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	0.000	\$0 \$0	0.000	\$0 \$0	
Env	iro	onmental Impact Mitigation	noctare	¥271,371	0.000	\$ 0	0.000	30	
		Environmental Mitigation	3%	6 of Line Cost		\$21,855,075		\$26,136,269	
Sigr	nal	s and Communication				A 47 040 007	85.248	\$61,428,508	
Sigr	nal	Signaling (ATC)	km	\$720,586	65.250	\$47,018,087			
Sigr	1 5 2 (Signaling (ATC) Communications (w/Fiber Optic Backbone)	km	\$595,973	65.250	\$38,887,140	85.248	\$50,805,533	
Sigr	1 5 2 0 3 V	Signaling (ATC)							
Sigr	nal 1 5 2 0 3 1 ctri	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Ification I tems Traction Power Supply	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057	
Sigr	1 5 2 (3) ctri	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System fication I tems Traction Power Supply Traction Over Distribution	km km	\$595,973 \$57,213	65.250 65.250	\$38,887,140 \$3,733,165	85.248 85.248	\$50,805,533 \$4,877,331	
Sigr	nal: 1	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System ification I tems Traction Power Supply Traction Power Distribution e Costs	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924	
Sigr	1 5 2 (3) ctri 1 2 -	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Ification Items Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057	
Sigr	1 5 2 6 3 1 2 ctri 1 2 cicle 1 1 ppo	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System filication I terms Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rt Facility Costs	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924	
Sigr	1 5 6 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System (fication I tems Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rt Facility Costs Facility Cost Breakdown	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924	
Sigr	nal	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System filication I terms Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rt Facility Costs	km km	\$595,973 \$57,213 \$368,420	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924	
Sigr	nal	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System (fication I tems Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rt Facility Costs Facility Cost Breakdown am Implementation Costs Program Implementation Costs ggencies	km km	\$595,973 \$57,213 \$368,420 \$686,995	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266 \$0 \$221,856,593	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924 \$0 \$259,136,908	
Elec Weh Sup Prog	nal	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System (fication I tems Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rtr Facility Costs Facility Costs Facility Cost Breakdown am Implementation Costs Program Implementation Costs gencies Contingencies	km km km km	\$595,973 \$57,213 \$368,420 \$686,995	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266 \$0 \$221,856,593 \$221,856,593	85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924 \$0 \$259,136,908 \$259,136,908	
Sigr Sigr Veh Sup Proo	nal	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System (fication I terms Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rt Facility Costs Facility Cost Breakdown am Implementation Costs Program Implementation Costs gencies Contingencies Contingencies Construction	km km km km	\$595,973 \$57,213 \$368,420 \$686,995	65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266 \$0 \$221,856,593 \$217,506,464 \$728,502,507	85.248 85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924 \$0 \$259,136,908 \$259,136,908 \$254,055,792 \$871,208,980	
Sigr Elec Veh Sup Proo	nali 1 3 2 (3 3 V 3 V 5 iicle 1 I I 6 gra 1 I I 7 gra 1 I I 8 gra	Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System (fication I tems Traction Power Supply Traction Power Distribution e Costs Fleet Size Estimate rtr Facility Costs Facility Costs Facility Cost Breakdown am Implementation Costs Program Implementation Costs gencies Contingencies	km km km km	\$595,973 \$57,213 \$368,420 \$686,995	65.250 65.250 65.250 65.250	\$38,887,140 \$3,733,165 \$24,039,323 \$44,826,266 \$0 \$221,856,593 \$221,856,593	85.248 85.248 85.248 85.248	\$50,805,533 \$4,877,331 \$31,407,057 \$58,564,924 \$0 \$259,136,908 \$259,136,908	

DESCRIPTION	UNIT	UNIT PRICE		QUANTIT	TIEC	
DESCRIPTION	ONT	UNITERICE	UPRR: to Merce		UPRR: to Merce	d Municipal
			Airport St	-	Airport St	•
Alignment Cost			(Alignmer		(Alignmen	
Track			Item	Item Cost	Item	Item Cost
1 Double Track Section - Total 2 Double Track Section - At-Grade	km km	\$846,282	60.146 48.871	\$41,358,653	60.641 49.241	\$41,671,777
3 Double Track Section - On Structure	km	\$1,600,459	11.275	\$18,045,178	11.400	\$18,245,235
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
5 Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0
7 Freight Single Track 9 Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.000	\$0 \$0	0.000	\$0 \$0
Earthwork and Related Items	KIII	\$1,092,304	0.000	\$0	0.000	\$0
1 Site Preparation - Undeveloped	Hectares	\$10,294	133.596	\$1,375,247	131.953	\$1,358,332
2 Total Cut	m3	\$7.59	333,989.6	\$2,533,350	329,881.8	\$2,502,191
3 Total Fill 6 Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	333,989.6 1.280	\$2,533,350 \$8,807	329,881.8 1.920	\$2,502,191 \$13,211
7 Security Fencing (Both Sides of R/W)	km	\$86,687	48.871	\$4,236,482	49.241	\$4,268,556
8 Special Drainage Facilities Structures/Tunnels/Walls	5% o	f Earthwork Cost		\$534,362		\$532,224
1 Standard Structure	km	\$11,702,749	6.650	\$77,823,279	6.900	\$80,748,966
2 High Structure	km	\$14,043,299	4.200	\$58,981,854	4.200	\$58,981,854
3 Long Span Structure	km	\$32,020,021	0.000	\$0 60	0.000	\$0
Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.000 0.875	\$0 \$17,237,500	0.000 0.750	\$0 \$14,775,000
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0 \$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
10 Seismic Chamber (Drill & Blast/Mined) 11 Crossovers	ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567	0.000	\$0	0.000	\$0
16 Retaining Walls	km	\$1,645,723 \$3,749,214	3.700	\$13,872,092	6.850	\$25,682,116
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations 1 Street Overcrossing HSR - (Urban)		\$14,628,436	0	\$0	0	\$0
2 Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436	22	\$121,578,557	19	\$104,999,662
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	14	\$13,046,398	8	\$7,455,084
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	6	\$35,108,246	6	\$35,108,246
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	2	\$1,972,130	2	\$1,972,130
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0
21 Minor crossing closures	ea	\$151,702	3	\$455,107	3	\$455,107
Building Items		21/2				
1 Intermediate Passenger Stations Merced Downtown Intermediate Station	ea ea	N/A \$32,430,000	1 0	\$0	1 0	\$0
Merced Municipal Airport Intermediate Station	ea	\$32,430,000	1	\$32,430,000	1	\$32,430,000
Castle Air Force Base Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
2 Terminal Passenger Stations 3 Parking - Structure	ea space	N/A \$14,244	0	\$0	0	\$0
4 Parking - At Grade	space	\$2,042	205	\$418,610	205	\$418,610
Rail and Utility Relocation						
1 Single Track Relocation (Temporary) 2 Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	2.000 8.313	\$2,167,176 \$9,007,866	2.000 8.313	\$2,167,176 \$9,007,866
3 Single Track Removal	km	\$54,000	0.000	\$9,007,800	0.000	\$7,007,888
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
5 Major Utility Relocations - Urban 6 Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	0.000 8.050	\$0 \$3,271,081	0.000 8.050	\$0 \$3,271,081
7 Major Utility Relocations - Suburban	km	\$232,971	33.600	\$7,827,839	33.600	\$7,827,839
8 Major Utility Relocations - Undeveloped	km	\$11,919	18.496	\$220,462	18.993	\$226,386
Right-of-Way 1 Right-of-Way Required for Each Segment						
1 Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban	hectare	\$2,332,729	0.000	\$0	0.000	\$0
Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	12.236 81.624	\$14,271,634 \$33,321,157	12.236 81.624	\$14,271,634 \$33,321,157
Undeveloped	hectare	\$408,227	56.228	\$16,395,534	54.965	\$16,027,220
2 Right-of-Way Required for Passenger Station & Parking Facilities						
Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0.000	\$0 \$0
Dense Suburban	nectare hectare	\$2,332,729 \$1,166,364	0.000	\$0	0.000	\$0
Suburban	hectare	\$408,227	1.153	\$470,686	1.153	\$470,686
Undeveloped Environmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
1 Environmental Impact Willigation	39	6 of Line Cost		\$18,364,486		\$18,117,876
Signals and Communication				, , .		
1 Signaling (ATC)	km	\$720,586	60.146	\$43,340,361	60.641	\$43,697,051
2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System	km km	\$595,973 \$57,213	60.146 60.146	\$35,845,411 \$3,441,159	60.641 60.641	\$36,140,418 \$3,469,480
Electrification Items	1011	\$57,E10	55.115	22/11/10/	00.011	\$5,157,100
1 Traction Power Supply	km	\$368,420	60.146	\$22,158,981	60.641	\$22,341,349
2 Traction Power Distribution	km	\$686,995	60.146	\$41,319,983	60.641	\$41,660,045
Vehicle Costs 1 Fleet Size Estimate				\$0		\$0
Support Facility Costs				\$U		-04
1 Facility Cost Breakdown						
Program Implementation Costs						
1 Program Implementation Costs	25.5% of Tot	al Cost and Procurement		\$177,218,119		\$174,965,128
Contingencies 1 Contingencies	25% of To	otal Construction Cost	Т	\$173,743,254		\$171,534,440
	2J70 UI I	ALL CONSTRUCTION COST				
				\$612,149.518		\$603,929.185
Total Construction Total Construction Total Construction and Right of Way				\$612,149,518 \$694,973,016		\$603,929,185 \$686,137,758

DECCRIPTION	UNIT	UNIT PRICE		QUANTIT	IEC	
DESCRIPTION	ONT	UNITERICE	BNSF: to Merced		BNSF: to Merce	d Municipal
			Airport St	-	Airport S	
Alignment Cost			(Alignment		(Alignmen	
Track	<u> </u>		Item	Item Cost	Item	Item Cost
1 Double Track Section - Total	km	A0.44.000	66.253	AFO 754 057	66.748	AFO 0/7 004
2 Double Track Section - At-Grade 3 Double Track Section - On Structure	km km	\$846,282 \$1,600,459	62.337 3.916	\$52,754,857 \$6,267,078	62.707 4.041	\$53,067,981 \$6,467,136
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0.000	\$0 \$0
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
Earthwork and Related Items		440.004	404.005	04.07/.044	400.040	A4 050 007
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	191.985 479,962.8	\$1,976,311 \$3,640,573	190.342 475,855.0	\$1,959,397 \$3,609,415
3 Total Fill	m3	\$7.59	479,962.8	\$3,640,573	475,855.0	\$3,609,415
6 Landscape/Erosion Control	Hectares	\$6,881	0.960	\$6,606	1.600	\$11,009
7 Security Fencing (Both Sides of R/W) 8 Special Drainage Facilities	km 5% o	\$86,687 f Earthwork Cost	62.337	\$5,403,827 \$733,394	62.707	\$5,435,901 \$731,257
Structures/Tunnels/Walls	376 0	I LaitiWork Cost		\$733,374		\$731,237
1 Standard Structure	km	\$11,702,749	2.600	\$30,427,147	2.850	\$33,352,834
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3 Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000 0.250	\$0 \$6,151,500	0.000 0.250	\$0 \$6,151,500
Waterway Crossing - Frinary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.835	\$16,449,500	0.710	\$13,987,000
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
13 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0
14 Trench Long	km	\$33,464,567				
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0 \$29.806.251
16 Retaining Walls 17 Containment Walls	km km	\$3,749,214 \$1,278,634	4.800 0.000	\$17,996,227 \$0	7.950 0.000	\$29,806,251
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations						
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	27	\$149,210,047	27	\$149,210,047
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	18	\$16,773,940	17	\$15,842,054
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$0
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	11	\$64,365,118	11	\$64,365,118
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	2	\$1,972,130	2	\$1,972,130
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0
21 Minor crossing closures	ea	\$151,702	4	\$606,809	4	\$606,809
Building Items 1 Intermediate Passenger Stations	0.0	N/A	1		1	
Merced Downtown Intermediate Station	ea ea	\$32,430,000	0	\$0	0	\$0
Merced Municipal Airport Intermediate Station	ea	\$32,430,000	1	\$32,430,000	1	\$32,430,000
Castle Air Force Base Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
2 Terminal Passenger Stations 3 Parking - Structure	ea space	N/A \$14,244	0	\$0	0	\$0
4 Parking - At Grade	space	\$2,042	205	\$418,610	205	\$418,610
Rail and Utility Relocation						
1 Single Track Relocation (Temporary)	km	\$1,083,588	4.800	\$5,201,222	4.800	\$5,201,222
2 Single Track Relocation (Permanent) 3 Single Track Removal	km km	\$1,083,588 \$54,000	1.250 0.000	\$1,354,485 \$0	1.250 0.000	\$1,354,485 \$0
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0 \$0	0.000	\$0
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	\$0
6 Major Utility Relocations - Dense Suburban	km	\$406,345	3.700	\$1,503,478	3.700	\$1,503,478
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	32.250 30.301	\$7,513,327 \$361,172	32.250 30.798	\$7,513,327 \$367,096
Right-of-Way	KIII	\$11,717	30.301	\$301,172	30.770	\$307,070
1 Right-of-Way Required for Each Segment						
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	0.000 11.248	\$0 \$13,119,266	0.000 11.248	\$0 \$13,119,266
Suburban Suburban	hectare	\$1,166,364	92.568	\$13,119,266	92.568	\$37,788,798
Undeveloped	hectare	\$291,591	89.987	\$26,239,414	88.724	\$25,871,100
2 Right-of-Way Required for Passenger Station & Parking Facilities		#0.400.000	0.000	**	0.000	
Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0.000	\$0 \$0
Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
Suburban	hectare	\$408,227	1.153	\$470,686	1.153	\$470,686
Undeveloped Environmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
1 Environmental Impact Mitigation	20	6 of Line Cost		\$17,642,966		\$18,033,506
Signals and Communication		Emo oost		¥17,072,700		ψ10,000,000
1 Signaling (ATC)	km	\$720,586	66.253	\$47,740,979	66.748	\$48,097,669
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	66.253	\$39,485,020	66.748	\$39,780,027
3 Wayside Protection System	km	\$57,213	66.253	\$3,790,562	66.748	\$3,818,883
Electrification Items 1 Traction Power Supply	km	\$368,420	66.253	\$24,408,922	66.748	\$24,591,289
2 Traction Power Supply 2 Traction Power Distribution	km	\$686,995	66.253	\$24,408,922 \$45,515,460	66.748	\$45,855,522
Vehicle Costs				, a		
1 Fleet Size Estimate				\$0		\$0
Support Facility Costs		1				
1 Facility Cost Breakdown						
Program Implementation Costs 1 Program Implementation Costs	25 50/ of 7-4	al Cost and Procurement		\$174,256,801		\$177,582,055
Contingencies	23.3% UI TOL	ar cost and rioculement		\$174,230,0UT		\$177,30Z,U55
1 Contingencies	25% of To	otal Construction Cost		\$170,840,001		\$174,100,054
Total Construction				\$588,098,872		\$601,116,861
Total Construction and Right of Way				\$683,360,003		\$696,400,217
Grand Total				\$1,028,456,805		\$1,048,082,327

DESCRIPTION	UNIT	UNIT PRICE		QUANTIT	IEC	
DESCRIPTION	ONT	UNITPRICE	BNSF: to Castle		BNSF: to Castl	e Air Force
			Base Sta		Base Sta	
Alignment Cost			(Alignmen		(Alignmer	
Track		T	Item	Item Cost	Item	Item Cost
Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	80.396 75.355	\$63,771,758	79.379 74.314	\$62,890,947
3 Double Track Section - On Structure	km	\$1,600,459	5.041	\$8,067,595	5.065	\$8,105,686
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
6 Freight Double Track 7 Freight Single Track	km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000	\$0 \$0
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
Earthwork and Related Items						
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	230.490 576,224.4	\$2,372,681 \$4,370,728	219.044 547,610.4	\$2,254,859 \$4,153,688
3 Total Fill	m3	\$7.59	576,224.4	\$4,370,728	547,610.4	\$4,153,688
6 Landscape/Erosion Control	Hectares	\$6,881	1.280	\$8,807	0.640	\$4,404
7 Security Fencing (Both Sides of R/W) 8 Special Drainage Facilities	km 5% o	\$86,687 f Earthwork Cost	75.355	\$6,532,318 \$882,763	74.314	\$6,442,094 \$850,437
Structures/Tunnels/Walls						
1 Standard Structure 2 High Structure	km km	\$11,702,749 \$14,043,299	3.700 0.000	\$43,300,170	3.500 0.000	\$40,959,621 \$0
3 Long Span Structure	km	\$14,043,299	0.000	\$0 \$0	0.000	\$0 \$0
Waterway Crossing - Primary	km	\$24,606,000	0.250	\$6,151,500	0.250	\$6,151,500
Waterway Crossing - Secondary (Irrigation/Canal Crossing) 5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.805	\$15,858,500 \$0	0.691	\$13,612,700 \$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
B Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
13 Trench Short	km	\$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0
14 Trench Long	km	\$33,464,567				
15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000 6.300	\$0 \$23,620,048	0.000 3.100	\$0 \$11.622.563
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	3	\$43,885,308
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	40	\$221,051,921	38	\$209,999,325
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	25	\$23,297,139	20	\$18,637,711
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	8	\$122,228,709
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	11	\$64,365,118	11	\$64,365,118
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	2	\$1,972,130	3	\$2,958,195
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0
21 Minor crossing closures Building Items	ea	\$151,702	4	\$606,809	4	\$606,809
1 Intermediate Passenger Stations	ea	N/A	1		1	
Merced Downtown Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
Merced Municipal Airport Intermediate Station Castle Air Force Base Intermediate Station	ea ea	\$32,430,000 \$32,430,000	0	\$0 \$32,430,000	0	\$0 \$32,430,000
2 Terminal Passenger Stations	ea	N/A	0		0	
3 Parking - Structure 4 Parking - At Grade	space	\$14,244 \$2,042	205	\$0 \$418,610	0 205	\$0 \$418,610
Rail and Utility Relocation	space	\$2,042	205	\$418,610	205	\$418,610
1 Single Track Relocation (Temporary)	km	\$1,083,588	4.800	\$5,201,222	8.400	\$9,102,138
2 Single Track Relocation (Permanent)	km	\$1,083,588	1.250	\$1,354,485	1.250	\$1,354,485
Single Track Removal Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000	\$0 \$0	0.000	\$0 \$0
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	7.000	\$4,058,036
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	3.700 39.893	\$1,503,478 \$9,293,928	3.700 37.379	\$1,503,478 \$8,708,237
Major Utility Relocations - Subdibarr Major Utility Relocations - Undeveloped	km	\$11,919	36.801	\$438,648	31.300	\$373,079
Right-of-Way						
1 Right-of-Way Required for Each Segment	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Dense Urban Urban	nectare hectare	\$3,499,093	0.000	\$0	12.160	\$28,365,982
Dense Suburban	hectare	\$1,166,364	11.248	\$13,119,266	11.248	\$13,119,266
Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	112.991 109.747	\$46,125,913 \$32,001,253	105.804 93.024	\$43,192,162 \$27,124,964
2 Right-of-Way Required for Passenger Station & Parking Facilities						
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	0.000	\$0 \$0	0.000	\$0 \$0
Suburban	hectare	\$408,227	0.869	\$354,750	0.869	\$354,750
Undeveloped Environmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
1 Environmental Impact Wiltigation	39	6 of Line Cost	1	\$22,096,141		\$26,239,736
Signals and Communication						
1 Signaling (ATC)	km	\$720,586	80.396	\$57,932,226	79.379	\$57,199,390
Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	80.396 80.396	\$47,913,871 \$4,599,732	79.379 79.379	\$47,307,766 \$4,541,546
Electrification Items						
1 Traction Power Supply	km	\$368,420	80.396	\$29,619,484	79.379	\$29,244,801
2 Traction Power Distribution Vehicle Costs	km	\$686,995	80.396	\$55,231,626	79.379	\$54,532,952
1 Fleet Size Estimate				\$0		\$0
Support Facility Costs		<u> </u>				
1 Facility Cost Breakdown						
Program Implementation Costs 1 Program Implementation Costs	2F F0/ of T-1	al Cost and Progurament		\$216,810,013		\$258,328,959
Contingencies	∠3.5% UI 10t	al Cost and Procurement		∌∠10,81U,U13		\$Z38,3Z8, Y 59
1 Contingencies	25% of To	otal Construction Cost		\$212,558,836		\$253,263,685
Total Construction				\$736,538,022		\$874,657,879
Total Construction and Right of Way				\$850,235,345 \$1,279,604,194		\$1,013,054,740
Grand Total						\$1,524,647,384

DESCRIPTION	UNIT	UNIT PRICE		QUANTI	TIFS	
DESCRIPTION	ONT	ONTTRICE	BNSF: to Castl		BNSF: to Castl	e Air Force
			Base Sta		Base Sta	
Alignment Cost			(Alignmen		(Alignmen	
Frack			Quantities	Item Cost	Quantities	Item Cost
Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	80.891 75.725	\$64,084,882	79.393 74.394	\$62,958,650
3 Double Track Section - On Structure	km	\$1,600,459	5.166	\$8,267,652	4.999	\$8,000,056
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
6 Freight Double Track 7 Freight Single Track	km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000	\$0 \$0
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
Earthwork and Related Items						
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	228.847 572,116.6	\$2,355,767 \$4,339,570	219.087 547,716.8	\$2,255,297 \$4,154,495
3 Total Fill	m3	\$7.59	572,116.6	\$4,339,570	547,716.8	\$4,154,495
6 Landscape/Erosion Control	Hectares	\$6,881	1.920	\$13,211	0.640	\$4,404
7 Security Fencing (Both Sides of R/W) 8 Special Drainage Facilities	km 5% of	\$86,687 Earthwork Cost	75.725	\$6,564,393 \$880,626	74.394	\$6,449,029 \$850,886
Structures/Tunnels/Walls						·
1 Standard Structure 2 High Structure	km km	\$11,702,749 \$14,043,299	3.950 0.000	\$46,225,858	3.500 0.000	\$40,959,621 \$0
3 Long Span Structure	km	\$32,020,021	0.000	\$0 \$0	0.000	\$0 \$0
Waterway Crossing - Primary	km	\$24,606,000	0.250	\$6,151,500	0.250	\$6,151,500
Waterway Crossing - Secondary (Irrigation/Canal Crossing 5 Twin Single Track Drill & Blast (<6 Miles)	ng) km	\$19,700,000 \$63,942,150	0.680	\$13,396,000 \$0	0.600	\$11,820,000 \$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
B Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$/1,355,/33 \$82,012,758		\$0 \$0		\$0 \$0
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0 \$0
14 Trench Long	km	\$33,464,567				
15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000 9.450	\$0 \$35,430,072	0.000 3.100	\$0 \$11.622.563
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	3	\$43,885,308
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	40	\$221,051,921	39	\$215,525,623
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	24	\$22,365,253	20	\$18,637,711
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	8	\$122,228,709
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	11	\$64,365,118	11	\$64,365,118
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	2	\$1,972,130	2	\$1,972,130
10 Street Bridging HSR Trench	ea		0	\$0	0	\$0
21 Minor crossing closures Building Items	ea	\$151,702	4	\$606,809	4	\$606,809
1 Intermediate Passenger Stations	ea	N/A	1		1	
Merced Downtown Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
Merced Municipal Airport Intermediate Station Castle Air Force Base Intermediate Station	ea ea	\$32,430,000 \$32,430,000	0	\$0 \$32,430,000	0	\$0 \$32,430,000
2 Terminal Passenger Stations	ea	N/A	0		0	
3 Parking - Structure 4 Parking - At Grade	space	\$14,244 \$2,042	0 205	\$0 \$418,610	0 205	\$0 \$418,610
Rail and Utility Relocation	space	\$2,042	205	\$410,010	203	\$410,010
1 Single Track Relocation (Temporary)	km	\$1,083,588	4.800	\$5,201,222	8.000	\$8,668,703
2 Single Track Relocation (Permanent) 3 Single Track Removal	km km	\$1,083,588 \$54,000	1.250 0.000	\$1,354,485 \$0	1.250 0.000	\$1,354,485 \$0
Single Track Removal Major Utility Relocations - Dense Urban	km	\$54,000 \$758,511	0.000	\$0 \$0	0.000	\$0 \$0
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	7.000	\$4,058,036
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	3.700 39.893	\$1,503,478 \$9,293,928	3.700 38.893	\$1,503,478 \$9,060,956
8 Major Utility Relocations - Undeveloped	km	\$11,919	37.298	\$444,572	29.800	\$355,200
Right-of-Way						
Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban	hectare	\$2,332,729	0.000	\$0	12.160	\$28,365,982
Dense Suburban	hectare	\$1,166,364	11.248	\$13,119,266	11.248	\$13,119,266
Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	112.991 108.484	\$46,125,913 \$31,632,938	110.407 88.464	\$45,071,054 \$25,795,309
2 Right-of-Way Required for Passenger Station & Parking	Facilities					
Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0.000	\$0 \$0
Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	0.000	\$0	0.000	\$0
Suburban	hectare	\$408,227	0.869	\$354,750	0.869	\$354,750
Undeveloped Environmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
1 Environmental Mitigation	3%	of Line Cost		\$22,486,680		\$26,319,370
Signals and Communication						
1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	80.891 80.891	\$58,288,916 \$48,208,878	79.393 79.393	\$57,209,478 \$47,316,109
Wayside Protection System	km	\$595,973 \$57,213	80.891	\$4,628,052	79.393	\$4,542,347
Electrification Items		\$368,420	80.891	\$29,801,852	79.393 79.393	\$29,249,959 \$54,542,570
1 Traction Power Supply	km km		00 001			φ34,34Z,37U
	km km	\$308,420 \$686,995	80.891	\$55,571,688	77.373	
1 Traction Power Supply 2 Traction Power Distribution //ehicle Costs 1 Fleet Size Estimate			80.891	\$55,571,688	77.373	\$0
1 Traction Power Supply 2 Traction Power Distribution //ehicle Costs 1 Fleet Size Estimate Support Facility Costs			80.891		77.373	\$0
1 Traction Power Supply 2 Traction Power Distribution /ehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown			80.891		77.575	\$0
Traction Power Supply Traction Power Distribution Power Distribution Traction Power Distribution	km	\$686,995	80.891	\$0	77.575	
1 Traction Power Supply 2 Traction Power Distribution /ehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown	km		80.891		77.575	\$0 \$259,166,206
1 Traction Power Supply 2 Traction Power Distribution Power Distribution Power Distribution Power Distribution 1 Felet Size Estimate 1 Felet Size Estimate 1 Feality Costs 1 Feality Cost Breakdown Program Implementation Costs 1 Program Implementation Costs 1 Program Implementation Costs 1 Contingencies 1 Contingencies	km 	\$686,995	80.891	\$220,135,267 \$215,818,890	77.373	\$259,166,206 \$254,084,516
1 Traction Power Supply 2 Traction Power Distribution //ehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown Program Implementation Costs 1 Program Implementation Costs Contingencies	km 	\$686,995	80.891	\$220,135,267	77.575	\$259,166,206

Capital Cost Estimates CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor D: Merced to Fresno

			orridor D: Merced to	Fresno			
	Cost Elements	UNIT	UNIT PRICE	DNCC, to France	QUANTI		a DT Station
Mian	nment Cost			BNSF: to Fresno (Alignmen		BNSF: to Fresn (Alignme	
racl				Quantities	Item Cost	Quantities	Item Cost
1	Double Track Section - Total	km		100.999		142.218	
3		km	\$846,282 \$1,600,459	93.923 7.076	\$79,485,185 \$11,325,490	131.867 10.351	\$111,596,344 \$16,566,994
4		km km	\$1,600,459	0.000	\$11,325,490	0.000	\$10,500,994
5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
7		km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000 0.000	\$0 \$0
9		km	\$1,692,564	0.000	\$0	0.000	\$0
	nwork and Related Items						
	Site Preparation - Undeveloped	Hectares	\$10,294	280.729	\$2,889,846	386.749	\$3,981,225
3	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	694,222.0 694,222.0	\$5,265,754 \$5,265,754	959,272.0 959,272.0	\$7,276,188 \$7,276,188
6	Landscape/Erosion Control	Hectares	\$6,881	2.240	\$15,413	3.840	\$26,422
	Security Fencing (Both Sides of R/W)	km	\$86,687 arthwork Cost	93.923	\$8,141,888	131.867	\$11,431,124
	Special Drainage Facilities	5% Of E	arthwork Cost		\$1,078,933		\$1,499,557
	Standard Structure	km	\$11,702,749	5.650	\$66,120,530	7.775	\$90,988,872
	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000 0.700	\$0 \$17,224,200	0.000 0.700	\$0 \$17,224,200
+	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.815	\$16,055,500	0.700	\$17,224,200
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
	Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
	3 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14	Trench Long	km	\$33,464,567				
	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0
	Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	8.850 0.000	\$33,180,543 \$0	16.225 0.000	\$60,830,996 \$0
	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
	le Separations						
_	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	8	\$117,027,488	8	\$117,027,488
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	17	\$93,947,066	53	\$292,893,795
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	21	\$19,569,597	33	\$30,752,223
7		ea	\$15,278,589	5	\$76,392,943	5	\$76,392,943
_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	2	\$11,702,749	2	\$11,702,749
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea	\$986,065	1	\$986,065	1 0	\$986,065
	Minor crossing closures	ea ea	\$151,702	0 3	\$0 \$455,107	3	\$0 \$455,107
	ling Items	ea	\$131,702	3	\$433,107	3	\$455,107
	Intermediate Passenger Stations	ea	N/A	1		1	
	Fresno Downtown Intermediate Station	ea	\$32,522,000	1	\$32,522,000	1	\$32,522,000
2	Terminal Passenger Stations Parking - Structure	ea	N/A \$14,244	0 994	¢14.1E0.E2/	0 994	\$14.1E0.E2/
4	Parking - At Grade	space space	\$2,042	0	\$14,158,536 \$0	0	\$14,158,536 \$0
	and Utility Relocation	7,7	*=/* :=		**	-	
	Single Track Relocation (Temporary)	km	\$1,083,588	8.800	\$9,535,573	8.800	\$9,535,573
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	42.801 0.000	\$46,378,643 \$0	42.801 0.000	\$46,378,643 \$0
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
5	Major Utility Relocations - Urban	km	\$579,719	21.000	\$12,174,109	21.000	\$12,174,109
	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	2.750	\$1,117,450
	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	23.000 57.000	\$5,358,342 \$679,410	48.170 70.300	\$11,222,232 \$837,938
_	t-of-Way		*******	2000	75.7/110	, 0.000	2007,700
	Right-of-Way Required for Each Segment						
	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	46.360 0.000	\$108,145,305 \$0	37.240 6.308	\$86,870,819 \$7,357,426
	Suburban Suburban	hectare	\$408,227	67.412	\$27,519,429	139.825	\$57,080,321
T	Undeveloped	hectare	\$291,591	173.280	\$50,526,894	211.128	\$61,563,032
2	Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	Urban Urban	hectare	\$3,499,093	2.050	\$4,782,094	1.770	\$4,128,930
	Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
4	Suburban	hectare	\$408,227	0.000	\$0	0.000	\$0
nvi	Undeveloped ronmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
	Environmental Mitigation	3% 0	f Line Cost		\$27,968,479		\$40,451,538
	als and Communication				. 11		y , ,
	Signaling (ATC)	km	\$720,586	100.999	\$72,778,601	142.218	\$102,480,288
	Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	100.999 100.999	\$60,192,828 \$5,778,512	142.218 142.218	\$84,758,133 \$8,136,781
	trification Items	NIII	φυ1,213	100.777	\$3,110,31Z	142.210	φυ,130,781
	Traction Power Supply	km	\$368,420	100.999	\$37,210,112	142.218	\$52,395,937
	Traction Power Distribution	km	\$686,995	100.999	\$69,385,915	142.218	\$97,703,012
2				T			
2 ehic	cle Costs	1			\$0		\$0
2 ehi d	Cle Costs Fleet Size Estimate						
ehio 1 upp	Cle Costs Fleet Size Estimate port Facility Costs				T		
2 ehio 1 upp	cle Costs						
ehic 1 upp 1 rog	Cle Costs Fleet Size Estimate port Facility Costs	25.5% of Total (Cost and Procurement		\$293,562,332		\$409,488,353
ehic 1 upp 1 rog 1 ont	Cle Costs Fleet Size Estimate Facility Costs Facility Cost Breakdown Facility Cost Breakdown Fam Implementation Costs Program Implementation Costs Implementation Costs Program Implementation Costs Implementation Costs Program Implementation Costs Cost						
2 rog	Cle Costs Fleet Size Estimate Oort Facility Costs Facility Cost Breakdown Fam Implementation Costs Program Implementation Costs ingencies Contingencies Contingencies		Cost and Procurement Construction Cost		\$287,806,208		\$401,459,170
2 1 1 1 1 1 1 1 1 1	Cle Costs Fleet Size Estimate Facility Costs Facility Cost Breakdown Facility Cost Breakdown Fam Implementation Costs Program Implementation Costs Implementation Costs Program Implementation Costs Implementation Costs Program Implementation Costs Cost						

Capital Cost Estimates CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor D: Merced to Fresno

		Cost Elements	UNIT	UNIT PRICE		QUANTI	ITIFS	
		Cost Elements	UNIT	UNITERICE	BNSF: to Fresh		BNSF: to Fresn	o DT Station
Alia	nn	nent Cost			(Alignme		(Alignme	
Trac					Quantities	Item Cost	Quantities	Item Cost
		Double Track Section - Total	km		92.271		130.093	
	3	Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	84.778 7.493	\$71,745,935 \$11,992,881	119.500 10.593	\$101,130,374 \$16,954,305
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$11,772,001	0.000	\$10,754,303
į	5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
-	6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0.000	\$0 \$0
	7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
	9	Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
		vork and Related Items	Unstance	410.004	240.4/2	¢0.557.401	220.442	#2 400 F/O
		Site Preparation - Undeveloped Fotal Cut	Hectares m3	\$10,294 \$7.59	248.462 613,555.6	\$2,557,691 \$4,653,890	338.113 837,683.4	\$3,480,568 \$6,353,925
	3 7	Total Fill	m3	\$7.59	613,555.6	\$4,653,890	837,683.4	\$6,353,925
		_andscape/Erosion Control	Hectares	\$6,881	2.880	\$19,817	5.760	\$39,633
		Security Fencing (Both Sides of R/W) Special Drainage Facilities	km 5% (\$86,687 of Earthwork Cost	84.778	\$7,349,136 \$961,721	119.500	\$10,359,065 \$1,329,356
		ures/Tunnels/Walls						+ 1/0-1/000
		Standard Structure	km	\$11,702,749	6.250	\$73,142,180	8.200	\$95,962,540
		High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000	\$0 \$0	0.000	\$0 \$0
-+		Naterway Crossing - Primary	km	\$24,606,000	0.700	\$17,224,200	0.700	\$17,224,200
	١	Naterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.815	\$16,055,500	0.840	\$16,548,000
		Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km	\$63,942,150		\$0		\$0
		Twin Single Track TBM (<6 Miles) Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592		\$0 \$0		\$0 \$0
8	8 [Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
		Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
		Seismic Chamber (Drill & Blast/Mined) Crossovers	ea ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0
1	12 (Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
		Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
		Trench Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
		Retaining Walls	km	\$3,749,214	10.850	\$40,678,971	23.100	\$86,606,842
		Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
		Single Track Cut and Cover Subway Separations	km	\$25,628,987	0.000	\$0	0.000	\$0
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	8	\$117,027,488	8	\$117,027,488
	_	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	6	\$33,157,788	31	\$177,315,239
	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	21	\$19,569,597	33	\$30,752,223
	_	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	5	\$76,392,943	5	\$76,392,943
	_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	6	\$35,108,246	6	\$35,108,246
		Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	1	\$986,065	1	\$986,065
1	10 5	Street Bridging HSR Trench	ea		0	\$0	0	\$0
2	21 1	Minor crossing closures	ea	\$151,702	3	\$455,107	3	\$455,107
Buil	dir	ng Items						
_ ^	1 I	Intermediate Passenger Stations	ea	N/A	1	\$32,522,000	1	\$32,522,000
	2 1	Fresno Downtown Intermediate Station Terminal Passenger Stations	ea ea	\$32,522,000 N/A	1 0	\$32,522,000	1 0	\$32,522,000
		Parking - Structure	space	\$14,244	994	\$14,158,536	994	\$14,158,536
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		nd Utility Relocation Single Track Relocation (Temporary)	Luca	#1 000 F00	0.000	*0.0/0.000	9.200	#0.0/0.000
		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	9.200 42.955	\$9,969,008 \$46,545,516	42.955	\$9,969,008 \$46,545,516
	3 5	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
		Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
		Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	24.272 0.000	\$14,070,952 \$0	24.272 1.400	\$14,070,952 \$568,884
		Major Utility Relocations - Dense Suburban	km	\$232,971	11.000	\$2,562,685	34.166	\$7,959,700
8	8 1	Major Utility Relocations - Undeveloped	km	\$11,919	57.000	\$679,410	70.257	\$837,426
		of-Way						
+	I F	Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
\dashv	†	Urban	hectare	\$2,332,729	51.485	\$120,101,566	42.365	\$98,827,080
	7	Dense Suburban	hectare	\$1,166,364	0.000	\$0	4.256	\$4,964,047
	+	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	30.932 173.280	\$12,627,291 \$50,526,894	90.869 210.047	\$37,095,073 \$61,247,904
+:	2 F	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	riectare	\$Z41'2A1	173.280	\$30,320,894	210.047	\$U1,247,9U4
	1	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
	- [Urban Dence Suburban	hectare	\$2,332,729	2.050	\$4,782,094	1.770	\$4,128,930
	+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0
	╧	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
		nmental Impact Mitigation						
		Environmental Mitigation	39	% of Line Cost		\$26,351,555		\$37,110,970
		s and Communication Signaling (ATC)	km	\$720,586	92.271	\$66,489,327	130.093	\$93,743,184
- 2	2 (Communications (w/Fiber Optic Backbone)	km	\$595,973	92.271	\$54,991,173	130.093	\$77,531,957
	3 \	Wayside Protection System	km	\$57,213	92.271	\$5,279,153	130.093	\$7,443,068
		fication Items	,	*****	00.074	**********	400.000	# 17 000 0 · ·
		Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	92.271 92.271	\$33,994,543 \$63,389,825	130.093 130.093	\$47,928,846 \$89,373,201
		e Costs	NIII	\$000,770	72.211	\$0J,J07,0ZJ	130.073	\$U7,3/3,ZUI
		Fleet Size Estimate				\$0		\$0
	ро	rt Facility Costs						
		acility Cost Breakdown						
		am Implementation Costs	25.50/ 5.7	tal Coot and Decree	Т	4070 (57.51)	-	4077 500 /45
Prog		Program Implementation Costs	25.5% of To	tal Cost and Procurement		\$278,657,516		\$377,503,612
Prog		nancios						
Proc	tin	agencies Contingencies	25% of T	otal Construction Cost	Т	\$273 103 644	T	\$370 101 591
Con	tin 1	gencies Contingencies Construction	25% of T	otal Construction Cost		\$273,193,644 \$878,385,174		\$370,101,581 \$1,237,032,320
Con Tota	tin 1 (Contingencies	25% of T	otal Construction Cost				

Capital Cost Estimates CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor D: Merced to Fresno

		Cost Elements	UNIT	UNIT PRICE	7.1.00.10	QUANTI	ITIFS	
		oost Elements	Oiti	CHITTRICE	UPRR: to Fresr		UPRR: to Fresn	o DT Station
		nent Cost			(Alignme		(Alignme	
Trac	_	Davible Track Coelies Total	km		Quantities 88.000	Item Cost	Quantities 123.741	Item Cost
	2	Double Track Section - Total Double Track Section - At-Grade	km	\$846,282	77.979	\$65,992,233	111.270	\$94,165,810
	3	Double Track Section - On Structure	km	\$1,600,459	10.021	\$16,038,202	12.471	\$19,959,327
	5	Double Track Section - In Tunnel or Subway Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0
	J	Single Track Sections - In Tunnel or Subway	km	\$1,000,437	0.000	\$0	0.000	\$0
	6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0
	7	Freight Single Track Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.000	\$0 \$0	0.000	\$0 \$0
		vork and Related Items	KIII	\$1,072,304	0.000	40	0.000	30
		Site Preparation - Undeveloped	Hectares	\$10,294	211.964	\$2,181,975	293.827	\$3,024,676
		Total Cut	m3	\$7.59	529,910.0	\$4,019,428	734,566.6	\$5,571,772
		Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	529,910.0 3.840	\$4,019,428 \$26,422	734,566.6 6.720	\$5,571,772 \$46,239
	7 5	Security Fencing (Both Sides of R/W)	km	\$86,687	77.979	\$6,759,768	111.270	\$9,645,666
		Special Drainage Facilities	5% c	f Earthwork Cost		\$850,351		\$1,193,006
		ures/Tunnels/Walls Standard Structure	km	\$11,702,749	6.000	\$70,216,493	9.100	\$106,495,014
		High Structure	km	\$14,043,299	3.100	\$43,534,225	1.950	\$27,384,432
		Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
		Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.750 0.221	\$18,454,500 \$4,353,700	1.250 0.276	\$30,757,500 \$5,437,200
		Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.221	\$4,333,700	0.270	\$5,437,200
(6	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
		Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
		Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733		\$0 \$0		\$0
1	10 5	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
		Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0
		Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
1	4	Trench Long	km	\$33,464,567				
		Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000 14.750	\$0 \$55,300,906	0.000 27.900	\$0 \$104,603,069
		Containing walls	km	\$1,278,634	0.000	\$05,300,906	0.000	\$104,603,069
1	8	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
		Separations						
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	8	\$117,027,488	8	\$117,027,488
	_	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	3	\$16,578,894	30	\$165,788,941
	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	25	\$23,297,139	33	\$30,752,223
	_	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	21	\$320,850,362	21	\$320,850,362
		Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374	5	\$29,256,872	5	\$29,256,872
	_	Street Bridging HSR Trench	ea	\$986,065	0	\$986,065 \$0	1 0	\$986,065 \$0
		Minor crossing closures	ea ea	\$151,702	4	\$606,809	4	\$606,809
	_	ng Items	Cu	\$131,762	7	\$600,007	-	\$000,007
		Intermediate Passenger Stations	ea	N/A	1		1	
		Fresno Downtown Intermediate Station	ea	\$32,522,000	1	\$32,522,000	1	\$32,522,000
		Terminal Passenger Stations Parking - Structure	ea space	N/A \$14,244	0 994	\$14,158,536	0 994	\$14,158,536
		Parking - At Grade	space	\$2,042	0	\$14,136,330	0	\$14,136,330
		nd Utility Relocation	•				·	
		Single Track Relocation (Temporary)	km	\$1,083,588	7.200	\$7,801,833	7.200	\$7,801,833
		Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	43.026 0.000	\$46,622,451 \$0	43.026 0.000	\$46,622,451 \$0
		Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
		Major Utility Relocations - Urban	km	\$579,719	29.300	\$16,985,781	29.300	\$16,985,781
		Major Utility Relocations - Dense Suburban	km	\$406,345	5.850 1.050	\$2,377,121	5.850	\$2,377,121
		Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	51.800	\$244,620 \$617,428	25.791 62.800	\$6,008,565 \$748,542
Righ	nt-	of-Way						
T	1	Right-of-Way Required for Each Segment		40 177 777				
+	+	Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000 59.128	\$0 \$137,929,585	0.000 50.008	\$0 \$116,655,099
	đ	Dense Suburban	hectare	\$1,166,364	8.892	\$10,371,312	8.892	\$10,371,312
1	1	Suburban	hectare	\$408,227	1.596	\$651,531	69.285	\$28,283,892
	2 1	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	hectare	\$291,591	156.180	\$45,540,688	182.438	\$53,197,285
+	-	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
	1	Urban	hectare	\$2,332,729	1.764	\$4,114,934	1.764	\$4,114,934
-	+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0
	\dashv	Undeveloped Undeveloped	hectare	\$408,227	0.000	\$0 \$0	0.000	\$0
		nmental Impact Mitigation						
		Environmental Mitigation	39	% of Line Cost		\$34,063,485		\$45,208,174
		s and Communication Signaling (ATC)	km	\$720,586	88.000	\$63,411,561	123.741	\$89,166,022
		Communications (w/Fiber Optic Backbone)	km	\$595,973	88.000	\$52,445,652	123.741	\$73,746,334
	3 \	Wayside Protection System	km	\$57,213	88.000	\$5,034,783	123.741	\$7,079,648
		ification Items		*****	20.005	#20 100 010	100 711	A 15 500 () 5
		Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	88.000 88.000	\$32,420,948 \$60,455,533	123.741 123.741	\$45,588,643 \$85,009,411
		e Costs	KIII	\$000,773	00.000	φυθ,400,000	123.741	\$00,UU7,411
		Fleet Size Estimate				\$0		\$0
Sup	ро	rt Facility Costs						
		Facility Cost Breakdown						
		am Implementation Costs Program Implementation Costs	25 E0/ af T-	al Cost and Progression		\$348,870,865		\$450.017.305
		Program Implementation Costs ngencies	_ ∠5.5% 0ĭ 101	al Cost and Procurement		\$348,87U,865		\$450,016,305
		Contingencies	25% of To	otal Construction Cost		\$342,030,260		\$441,192,456
	1 10							
		Construction				\$1,135,449,506		\$1,506,939,130
Tota	al (Construction Construction and Right of Way				\$1,135,449,506 \$1,368,121,041		\$1,506,939,130 \$1,764,769,825

Capital Cost Estimates CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor D: Merced to Fresno

				Corridor D: Merced to	1103110	OLIANI	TITIE0	
Cost Elements		UNIT	UNIT PRICE	UPRR: to Fresno	QUAN DT Station	UPRR: to Fresno DT Station (Alignment		
		nent Cost			(Alignmer		D8)	Itam Cast
Trac		Double Track Section - Total	km		Quantities 96.728	Item Cost	Quantities 135.866	Item Cost
	2	Double Track Section - At-Grade	km	\$846,282	87.124	\$73,731,482	123.637	\$104,631,781
	4	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	9.604 0.000	\$15,370,811 \$0	12.229 0.000	\$19,572,016 \$0
	5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
-	6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0.000	\$0 \$0
	7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
	9	Four-track construction or reconstruction work and Related Items	km	\$1,692,564	0.000	\$0	0.000	\$0
		Site Preparation - Undeveloped	Hectares	\$10,294	244.231	\$2,514,130	342.462	\$3,525,334
	2	Total Cut	m3	\$7.59	610,576.4	\$4,631,292	856,155.2	\$6,494,036
		Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	610,576.4 3.200	\$4,631,292 \$22,019	856,155.2 4.800	\$6,494,036 \$33,028
	7 5	Security Fencing (Both Sides of R/W)	km	\$86,687	87.124	\$7,552,521	123.637	\$10,717,724
		Special Drainage Facilities Tures/Tunnels/Walls	5% o	f Earthwork Cost		\$967,563		\$1,363,208
		Standard Structure	km	\$11,702,749	5.400	\$63,194,843	8.675	\$101,521,345
		High Structure	km	\$14,043,299	3.100	\$43,534,225	1.950	\$27,384,432
-		Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000 0.750	\$0 \$18,454,500	0.000 1.250	\$0 \$30,757,500
	١	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.221	\$4,353,700	0.251	\$4,944,700
		Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0
	7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
		Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
		Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
1	11 (Crossovers	ea	\$80,782,844		\$0		\$0
		Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0
1	14	Trench Long	km	\$33,464,567				
		Mechanical & Electrical for Tunnels Retaining Walls	km	\$1,645,723	0.000	\$0	0.000	\$0
		Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	12.750 0.000	\$47,802,478 \$0	21.025 0.000	\$78,827,223 \$0
1	8	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
		Separations						
_	_	Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	8 14	\$117,027,488 \$77,368,172	8 52	\$117,027,488 \$287,367,497
		Street Overcrossing HSR - (Suburbarry Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	25	\$23,297,139	33	\$30,752,223
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	21	\$320,850,362	21	\$320,850,362
	8 5	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	1	\$5,851,374	1	\$5,851,374
_	_	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	1	\$986,065	1	\$986,065
_	_	Street Bridging HSR Trench	ea		0	\$0	0	\$0
	_	Minor crossing closures ng Items	ea	\$151,702	4	\$606,809	4	\$606,809
		Intermediate Passenger Stations	ea	N/A	1		1	
		Fresno Downtown Intermediate Station	ea	\$32,522,000	1	\$32,522,000	1	\$32,522,000
		Terminal Passenger Stations Parking - Structure	ea space	N/A \$14,244	994	\$14,158,536	994	\$14,158,536
	4 F	Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		nd Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	6.800	\$7,368,397	6.800	\$7,368,397
		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km	\$1,083,588	42.872	\$46,455,578	42.872	\$46,455,578
		Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
	4 I	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0.000 26.028	\$0 \$15,088,939	0.000 26.028	\$0 \$15,088,939
	6 1	Major Utility Relocations - Dense Suburban	km	\$406,345	5.850	\$2,377,121	7.200	\$2,925,687
		Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	13.050 51.800	\$3,040,277 \$617,428	39.795 62.843	\$9,271,096 \$749,055
		of-Way	I MII	Ψ11,717	31.000	ΨU17,420	02.043	\$147,033
Ĭ	1	Right-of-Way Required for Each Segment						
+	+	Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000 54.003	\$0 \$125,973,324	0.000 44.883	\$0 \$104,698,838
#	1	Dense Suburban	hectare	\$1,166,364	8.892	\$10,371,312	10.944	\$12,764,692
+	4	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	38.076 156.180	\$15,543,668 \$45,540,688	118.241 183.519	\$48,269,140 \$53,512,413
1	2	Right-of-Way Required for Passenger Station & Parking Facilities	Hecidle			\$4J,J4U,000		900,012,413
1	7	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	+	Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	1.764 0.000	\$4,114,934 \$0	1.764 0.000	\$4,114,934 \$0
1	1	Suburban	hectare	\$408,227	0.000	\$0	0.000	\$0
DV	irc	Undeveloped primental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
		Environmental Mitigation	39	6 of Line Cost		\$35,680,409		\$48,548,743
		s and Communication						
		Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	96.728 96.728	\$69,700,835 \$57,647,307	135.866 135.866	\$97,903,126 \$80,972,511
	3 \	Wayside Protection System	km	\$57,213	96.728	\$5,534,141	135.866	\$7,773,361
		ification Items						
		Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	96.728 96.728	\$35,636,517 \$66,451,623	135.866 135.866	\$50,055,734 \$93,339,221
		e Costs	MII	\$000,770	70.720	\$00,101,023	153.000	¥10,007,221
I	1 I	Fleet Size Estimate				\$0		\$0
		ort Facility Costs			ı			
		Facility Cost Breakdown am Implementation Costs						
T	1	Program Implementation Costs	25.5% of Tot	al Cost and Procurement		\$363,775,681		\$482,001,046
		ngencies	0501 5	tal Caratauritae C		4051 110 05		4470 550 5 ::
		Construction	25% of To	otal Construction Cost		\$356,642,825 \$1,189,346,964	4	\$472,550,046 \$1,618,291,423
ot:								
	al (Construction and Right of Way				\$1,426,571,299	9	1,890,200,182

Capital Cost Estimates CAHSRA Program EIR/EIS SACRAMENTO TO BAKERSFIELD Corridor E: Fresno to Tulare

0		Tridor E: Fresho to		OLIANIT	TITIEC		
Cost Elements	UNIT	UNIT PRICE	UPRR: to Visalia	QUANT	BNSF: to Han	ford Station	
Alignment Cost			(Alignm		(Alignment E2)		
Track			Quantities	Item Cost	Quantities	Item Cost	
1 Double Track Section - Total	km		50.000		47.817		
2 Double Track Section - At-Grade	km	\$846,282	44.023	\$37,255,877	44.764	\$37,882,803	
3 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km	\$1,600,459 \$1,600,459	5.977 0.000	\$9,565,945 \$0	3.053 0.000	\$4,886,522 \$0	
5 Double Track Section - In Trench	km km	\$1,600,459	0.000	\$0	0.000	\$0	
Single Track Sections - In Tunnel or Subway	km	\$1,000,437	0.000	\$0	0.000	\$0	
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$0	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0	
9 Four-track construction or reconstruction Earthwork and Related Items	km	\$1,692,564	0.000	\$0	0.000	\$0	
1 Site Preparation - Undeveloped	Hectares	\$10,294	130.948	\$1,347,990	132.976	\$1,368,863	
2 Total Cut	m3	\$7.59	327,370.0	\$2,483,139	332,439.2	\$2,521,590	
3 Total Fill	m3	\$7.59	327,370.0	\$2,483,139	332,439.2	\$2,521,590	
6 Landscape/Erosion Control	Hectares	\$6,881	2.240	\$15,413	0.640	\$4,404	
7 Security Fencing (Both Sides of R/W) 8 Special Drainage Facilities	km	\$86,687 Earthwork Cost	44.023	\$3,816,223	44.764	\$3,880,441	
Structures/Tunnels/Walls	5% 01	Earthwork Cost		\$507,295		\$514,844	
1 Standard Structure	km	\$11,702,749	6.700	\$78,408,417	2.600	\$30,427,147	
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0	
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
Waterway Crossing - Primary	km	\$24,606,000	0.325	\$7,996,950	0.150	\$3,690,900	
Waterway Crossing - Secondary (Irrigation/Canal Crossing) 5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.277	\$5,456,900 \$0	0.230	\$4,531,000 \$0	
6 Twin Single Track DMII & Blast (<6 Miles)	km	\$47,261,589		\$0		\$0	
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0	
8 Double Track Drill & Blast	km	\$71,355,733		\$0		\$0	
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0 \$0		\$0 \$0	
11 Crossovers 12 Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0	
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0	
14 Trench Long	km	\$33,464,567					
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0	
16 Retaining Walls	km	\$3,749,214	6.500	\$24,369,891	7.600	\$28,494,026	
17 Containment Walls 18 Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0.000	\$0 \$0	0.000 0.000	\$0 \$0	
Grade Separations	KIII	\$23,020,967	0.000	\$0	0.000	\$0	
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$0	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	7	\$38,684,086	17	\$93,947,066	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	13	\$12,114,512	20	\$18,637,711	
7 Street Undercrossing HSR - (Urban) 8 Street Undercrossing HSR - (Suburban)	ea	\$15,278,589 \$5,851,374	0 3	\$0 \$17,554,123	0 2	\$0 \$11,702,749	
9 Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374	8	\$7,888,520	0	\$11,702,749	
10 Street Bridging HSR Trench	ea	\$700,000	0	\$0	0	\$0	
21 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702	
Building Items							
1 Intermediate Passenger Stations	ea	N/A	1	400 745 500	1		
Vasalia Airport Intermediate Station Hanford Intermediate Station	ea ea	\$28,715,500 \$28,715,500	1 0	\$28,715,500 \$0	0	\$0 \$28,715,500	
2 Terminal Passenger Stations	ea	N/A	0	40	0	\$20,713,300	
3 Parking - Structure	space	\$14,244	0	\$0	0	\$0	
4 Parking - At Grade	space	\$2,042	62	\$126,604	62	\$126,604	
Rail and Utility Relocation							
Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	3.200 7.000	\$3,467,481 \$7,585,115	0.400 3.248	\$433,435 \$3,519,493	
3 Single Track Removal	km	\$1,003,300	0.000	\$7,565,115	0.000	\$3,319,493	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	\$0	
6 Major Utility Relocations - Dense Suburban	km	\$406,345	4.300	\$1,747,285	4.600	\$1,869,189	
7 Major Utility Relocations - Suburban	km	\$232,971	6.450	\$1,502,665	14.667	\$3,416,991	
8 Major Utility Relocations - Undeveloped Right-of-Way	km	\$11,919	39.250	\$467,839	28.550	\$340,301	
1 Right-of-Way Required for Each Segment							
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban	hectare	\$2,332,729	0.000	\$0	0.000	\$0	
Dense Suburban	hectare	\$1,166,364	8.056	\$9,396,231	6.992	\$8,155,220	
Suburban Undeveloped	hectare	\$408,227 \$201,501	16.340	\$6,670,436	41.852	\$17,085,005 \$25,207,760	
2 Right-of-Way Required for Passenger Station & Parking Facilities	hectare	\$291,591	116.736	\$34,039,171 \$0	86.792	\$25,307,769 \$0	
Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban	hectare	\$2,332,729	0.000	\$0	0.000	\$0	
Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0	
Suburban	hectare	\$408,227	0.000	\$0	0.580	\$236,772	
Undeveloped Evironmental Impact Mitigation	hectare	\$291,591	0.720	\$209,946	0.000	\$0	
1 Environmental Mitigation				\$12,455,159		\$11,992,240	
Signals and Communication				,,,			
1 Signaling (ATC)	km	\$720,586	50.000	\$36,029,296	47.817	\$34,456,257	
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	50.000	\$29,798,666	47.817	\$28,497,656	
3 Wayside Protection System Electrification I tems	km	\$57,213	50.000	\$2,860,672	47.817	\$2,735,775	
1 Traction Power Supply	km	\$368,420	50.000	\$18,420,993	47.817	\$17,616,733	
2 Traction Power Distribution	km	\$686,995	50.000	\$34,349,735	47.817	\$32,850,025	
Vehicle Costs						,	
1 Fleet Size Estimate							
Support Facility Costs							
1 Facility Cost Breakdown Program Implementation Costs				\$0		\$0	
1 Program Implementation Costs	25.5% of Total	Cost and Procurement		\$121,875,444		\$117,942,172	
Contingencies	20.0,0 01 10(a)	a. aa i roogromon		Ψ121,070,TTT		V,/72,1/2	
1 Contingencies	25% of Tot	al Construction Cost		\$119,485,729		\$115,629,580	
Total Construction				\$415,171,974		\$399,741,317	
Total Construction and Right of Way				\$477,942,917		\$462,518,322	
Grand Total				\$719,304,091		\$696,090,074	

	Cost Elements	UNIT	UNIT PRICE		QUANT	TITIES	
Aligr	ment Cost	5	0	UPRR: to Bakersfie (Alignme	ld Airport Station	UPRR: to Bakersfie	
Trac	(Quantities	Item Cost	Quantities	Item Cost
	Double Track Section - Total	km	404/ 000	129.465	400 000 004	116.000	400 404 400
3		km km	\$846,282 \$1,600,459	116.875 12.590	\$98,909,221 \$20,149,782	104.110 11.890	\$88,106,430 \$19,029,460
4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	\$0
5		km	\$1,600,459	0.000	\$0	0.000	\$0
6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0	0.000	\$0
7	Freight Single Track	km	\$423,141				
9 Earth	Four-track construction or reconstruction	km	\$1,692,564				
	Site Preparation - Undeveloped	Hectares	\$10,294	334.066	\$3,438,900	300.276	\$3,091,067
2	Total Cut	m3	\$7.59	835,164.0	\$6,334,815	750,690.0	\$5,694,070
	Total Fill	m3	\$7.59	835,164.0	\$6,334,815	750,690.0	\$5,694,070
	Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	3.840 116.875	\$26,422 \$10.131.546	3.200 104.110	\$22,019 \$9.024,986
8	Special Drainage Facilities		f Earthwork Cost	110.073	\$1,313,325	104.110	\$1,176,311
	ctures/Tunnels/Walls						
	Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	12.800 0.000	\$149,795,184 \$0	12.100 0.000	\$141,603,260 \$0
	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
	Waterway Crossing - Primary	km	\$24,606,000	0.340	\$8,366,040	0.340	\$8,366,040
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.430	\$8,471,000	0.430	\$8,471,000
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0
	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
8	Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
	Crossovers Cramber (Drill & Blast/Mined)	ea ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0
12	Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
	Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
	Trench Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
	Retaining Walls	km	\$3,749,214	13.900	\$52,114,074	12.100	\$45,365,489
1.	Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
	Single Track Cut and Cover Subway e Separations	km	\$25,628,987	0.000	\$0	0.000	\$0
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308
2	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	13	\$71,841,874	13	\$71,841,874
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	16	\$14,910,169	16	\$14,910,169
	Street Undercrossing HSR - (Urban) Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	5 8	\$76,392,943 \$46,810,995	5 3	\$76,392,943 \$17,554,123
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	5	\$4,930,325	3	\$2,958,195
	Street Bridging HSR Trench	ea		0	\$0	0	\$0
	Minor crossing closures ling Items	ea	\$151,702	1	\$151,702	1	\$151,702
	Intermediate Passenger Stations	ea	N/A	1		1	
	Bakersfield Airport Intermediate Station	ea	\$32,430,000	1	\$32,430,000	1	\$32,430,000
	Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$0
	Truxton (Union Avenue) Intermediate Station Truxton (Amtrak) Intermediate Station	ea ea	\$32,430,000 \$165,048,000	0	\$0 \$0	0	\$0 \$0
2	Terminal Passenger Stations	ea	N/A	0	ΨΟ	0	
	Parking - Structure	space	\$14,244	855	\$12,178,620	855	\$12,178,620
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	0	\$0
	Single Track Relocation (Temporary)	km	\$1,083,588	6.000	\$6,501,527	3.600	\$3,900,916
	Single Track Relocation (Permanent)	km	\$1,083,588	25.751	\$27,903,471	21.876	\$23,704,568
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0.000 11.000	\$0 \$6,376,914	0.000 7.000	\$0 \$4,058,036
6	Major Utility Relocations - Dense Suburban	km	\$406,345	12.300	\$4,998,049	12.300	\$4,998,049
7	Major Utility Relocations - Suburban	km	\$232,971	31.900	\$7,431,787	26.400	\$6,150,445
	Major Utility Relocations - Undeveloped t-of-Way	km	\$11,919	74.265	\$885,199	70.300	\$837,938
	Right-of-Way Required for Each Segment						
\Box	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
-	Urban Dense Suburban	hectare	\$2,332,729 \$1,166,364	16.720 22.344	\$39,003,225 \$26,061,246	10.640 22.344	\$24,820,234 \$26,061,246
+	Suburban Suburban	hectare hectare	\$1,166,364	92.568	\$26,061,246 \$37,788,798	75.848	\$26,061,246
	Undeveloped	hectare	\$291,591	221.890	\$64,701,018	209.836	\$61,186,296
2							
+	Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000 0.000	\$0 \$0	0.000 0.000	\$0 \$0
\dashv	Dense Suburban	hectare	\$2,332,729	0.000	\$0	0.000	\$0
	Suburban	hectare	\$408,227	3.178	\$1,297,347	3.178	\$1,297,347
Evira	Undeveloped promental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
	Environmental Mitigation	3%	6 of Line Cost		\$31,564,115		\$28,001,484
	als and Communication					<u>'</u>	
1	Signaling (ATC)	km	\$720,586	129.465	\$93,290,656	116.000	\$83,587,967
3	Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	129.465 129.465	\$77,157,685 \$7,407,138	116.000 116.000	\$69,132,905 \$6,636,759
Elect	rification Items	, mil	J31,213			110.000	
	Traction Power Supply	km	\$368,420	129.465	\$47,697,478	116.000	\$42,736,705
	Traction Power Distribution	km	\$686,995	129.465	\$88,941,768	116.000	\$79,691,385
Vehi					\$0		\$0
1	Fleet Size Estimate						
1 Supp	ort Facility Costs	1	1				
1 Supp 1	Facility Costs Facility Cost Breakdown						
Supp 1 Prog	ort Facility Costs Facility Cost Breakdown ram Implementation Costs	25.5% of Total	al Cost and Procurement		\$319,400.994		\$281,956.726
Supp 1 Prog 1 Cont	ort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs ingencies		al Cost and Procurement		\$319,400,994		\$281,956,726
Supp 1 Prog 1 Cont	ort Facility Costs Facility Cost Breakdown Fam Implementation Costs Program Implementation Costs Ingencies Contingencies		al Cost and Procurement		\$313,138,230		\$276,428,163
Supp 1 Prog 1 Cont Tota	ort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs ingencies				·		

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Cost Elements Alignment Cost	UNIT	UNIT PRICE	UPRR (around to Bakersfield Air (Alignmen	oort Station	UPRR (around to Bakersfield Air (Alignmen	port Station
Track			Quantities	Item Cost	Quantities	Item Cost
1 Double Track Section - Total	km		129.957		116.492	
2 Double Track Section - At-Grade 3 Double Track Section - On Structure	km	\$846,282	120.552 9.405	\$102,021,001	107.787 8.705	\$91,218,210
3 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	0.000	\$15,052,319 \$0	0.000	\$13,931,998 \$0
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
6 Freight Double Track	km	\$846,282				
7 Freight Single Track 9 Four-track construction or reconstruction	km km	\$423,141 \$1,692,564				
Earthwork and Related Items	NIII	\$1,072,001				
Site Preparation - Undeveloped	Hectares	\$10,294	333.977	\$3,437,992	300.188	\$3,090,159
2 Total Cut 3 Total Fill	m3	\$7.59 \$7.59	834,943.6 834,943.6	\$6,333,143 \$6,333,143	750,469.6 750,469.6	\$5,692,398 \$5,692,398
6 Landscape/Erosion Control	m3 Hectares	\$6,881	4.160	\$6,333,143	3.520	\$5,692,398
7 Security Fencing (Both Sides of R/W)	km	\$86,687	120.552	\$10,450,295	107.787	\$9,343,735
8 Special Drainage Facilities	5% of	Earthwork Cost		\$1,329,160		\$1,192,146
Structures/Tunnels/Walls 1 Standard Structure	km	\$11,702,749	9.600	\$112,346,388	8.900	\$104,154,464
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
Waterway Crossing - Primary	km	\$24,606,000	0.340	\$8,366,040	0.340	\$8,366,040
Waterway Crossing - Secondary (Irrigation/Canal Crossing) 5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.450	\$8,865,000 \$0	0.450	\$8,865,000 \$0
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
8 Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
11 Crossovers	ea	\$80,782,844		\$0		\$0
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
16 Retaining Walls	km	\$3,749,214	15.800	\$59,237,580	14.000	\$52,488,995
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	22	\$121,578,557	22	\$121,578,557
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	22	\$20,501,482	22	\$20,501,482
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	4	\$61,114,355	4	\$61,114,355
Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	8 5	\$46,810,995 \$4,930,325	3 3	\$17,554,123 \$2,958,195
10 Street Bridging HSR Trench	ea	\$700,003	0	\$4,730,323	0	\$2,730,173
21 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702
Building Items						
Intermediate Passenger Stations Bakersfield Airport Intermediate Station	ea ea	N/A \$32,430,000	1	\$32,430,000	1 1	\$32,430,000
Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$32,430,000	0	\$32,430,000
Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
Truxton (Amtrak) Intermediate Station	ea	\$165,048,000	0	\$0	0	\$0
2 Terminal Passenger Stations 3 Parking - Structure	ea space	N/A \$14,244	0 855	\$12,178,620	0 855	\$12,178,620
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$0
Rail and Utility Relocation						
Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588	5.600 21.501	\$6,068,092	3.200	\$3,467,481
3 Single Track Renoval	km	\$1,083,588 \$54,000	0.000	\$23,298,222 \$0	17.626 0.000	\$19,099,319 \$0
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
5 Major Utility Relocations - Urban	km	\$579,719	11.000	\$6,376,914	7.000	\$4,058,036
Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	8.900 35.842	\$3,616,474 \$8,350,160	8.900 30.342	\$3,616,474 \$7,068,818
Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km	\$11,919	74.215	\$884,603	70.250	\$837,343
Right-of-Way	,					
1 Right-of-Way Required for Each Segment			_			
Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000 16.720	\$0 \$39,003,225	0.000 10.640	\$0 \$24,820,234
Dense Suburban	hectare	\$1,166,364	17.176	\$20,033,474	17.176	\$20,033,474
Suburban	hectare	\$408,227	92.936	\$37,938,961	76.216	\$31,113,398
Undeveloped 2 Right-of-Way Required for Passenger Sta & Parking Facilities	hectare	\$291,591	221.738	\$64,656,696	209.684	\$61,141,974
Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban Urban	hectare	\$2,332,729	0.000	\$0	0.000	\$0
Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
Suburban	hectare	\$408,227	3.178	\$1,297,347	3.178	\$1,297,347
Undeveloped Evironmental Impact Mitigation	hectare	\$291,591	0.000	\$0	0.000	\$0
1 Environmental Mitigation	3%	of Line Cost		\$31,688,845		\$28,126,214
Signals and Communication	leno	\$720,586	129.957 129.957	\$93,645,184 \$77,450,904	116.492 116.492	\$83,942,495 \$69,426,124
1 Signaling (ATC)	km					
1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	km km	\$595,973 \$57,213	129.957	\$7,435.287	116.492	\$0.004.908
Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Electrification Items	km km	\$57,213	129.957	\$7,435,287	116.492	\$6,664,908
1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System	km km	\$57,213 \$368,420	129.957	\$47,878,741	116.492	\$42,917,967
I Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Supply Traction Power Distribution	km km	\$57,213				
Signaling (ATC) Communications (WrFiber Optic Backbone) Wayside Protection System Electrification Items Traction Power Supply Traction Power Distribution Vehicle Costs	km km	\$57,213 \$368,420	129.957	\$47,878,741	116.492	\$42,917,967
I Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Electrification Items I Traction Power Supply Traction Power Distribution Vehicle Costs I Fleet Size Estimate Support Facility Costs	km km	\$57,213 \$368,420	129.957	\$47,878,741 \$89,279,770	116.492	\$42,917,967 \$80,029,386
I Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Electrification Items Traction Power Supply Traction Power Distribution Vehicle Costs I Fleet Size Estimate Support Facility Costs I Fleatility Cost Breakdown	km km	\$57,213 \$368,420	129.957	\$47,878,741 \$89,279,770	116.492	\$42,917,967 \$80,029,386
Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Electrification Items Traction Power Supply Traction Power Distribution Vehicle Costs Fleet Size Estimate Support Facility Costs Facility Cost Breakdown Program Implementation Costs	km km	\$57,213 \$368,420 \$686,995	129.957	\$47,878,741 \$89,279,770 \$0	116.492	\$42,917,967 \$80,029,386 \$0
I Signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System Electrification Items Traction Power Supply Traction Power Distribution Vehicle Costs I Fleet Size Estimate Support Facility Costs I Fleatility Cost Breakdown	km km	\$57,213 \$368,420	129.957	\$47,878,741 \$89,279,770	116.492	\$42,917,967 \$80,029,386
Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Electrification Items Traction Power Supply Traction Power Distribution Vehicle Costs Fleet Size Estimate Support Facility Costs Facility Cost Packdown Program Implementation Costs Program Implementation Costs Contingencies I Contingencies	km km km km 25.5% of Total	\$57,213 \$368,420 \$686,995	129.957 129.957	\$47,878,741 \$89,279,770 \$0 \$318,982,908 \$312,728,341	116.492	\$42,917,967 \$80,029,386 \$0 \$281,538,640 \$276,018,274
1 Signaling (ATC)	km km km km 25.5% of Total	\$57,213 \$368,420 \$686,995 Cost and Procurement	129.957 129.957	\$47,878,741 \$89,279,770 \$0 \$318,982,908	116.492 116.492	\$42,917,967 \$80,029,386 \$0 \$281,538,640

	Cost Floments	UNIT	UNIT PRICE		QUANT	TITIES	
)	Cost Elements mment Cost	UNIT	UNIT PRICE	BNSF: to Bakersfield	d Airport Station nt F5)	BNSF: to Bakersfield (Alignme	nt F6)
Trac	Double Track Section - Total	km		Quantities 143.220	Item Cost	Quantities 129.755	Item Cost
2		km	\$846,282	133.335	\$112,839,364	120.570	\$102,036,572
3		km	\$1,600,459	9.885	\$15,819,900	9.185	\$14,699,578
5		km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0
	Single Track Sections - In Tunnel or Subway	km	\$1,000,437	0.000	\$0	0.000	\$0
6	Freight Double Track	km	\$846,282				
7		km km	\$423,141 \$1,692,564				
	hwork and Related Items	KIII	\$1,092,304				
	Site Preparation - Undeveloped	Hectares	\$10,294	340.085	\$3,500,862	306.295	\$3,153,029
	? Total Cut	m3	\$7.59	850,212.0	\$6,448,956	765,738.0	\$5,808,211
	Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	850,212.0 3.520	\$6,448,956 \$24,220	765,738.0 2.880	\$5,808,211 \$19,817
7	Security Fencing (Both Sides of R/W)	km	\$86,687	133.335	\$11,558,450	120.570	\$10,451,890
	B Special Drainage Facilities ctures/Tunnels/Walls	5% of E	arthwork Cost		\$1,399,072		\$1,262,058
	Standard Structure	km	\$11,702,749	9.700	\$113,516,663	9.000	\$105,324,739
2	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3	Long Span Structure	km	\$32,020,021	0.000 0.195	\$0 \$4,798,170	0.000 0.195	\$0 \$4,798,170
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.195	\$4,798,170 \$13,691,500	0.195	\$4,798,170
5	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.070	\$0	0.070	\$0
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0
9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
10	0 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
	1 Crossovers	ea	\$80,782,844		\$0		\$0
	2 Cut & Cover Double Track Tunnel 3 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0
1.	4 Trench Long	km	\$33,464,567	0.000	40	0.000	30
1!	5 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0
	6 Retaining Walls 7 Containment Walls	km km	\$3,749,214 \$1,278,634	12.850 0.000	\$48,177,399 \$0	11.050 0.000	\$41,428,814 \$0
	8 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
Grad	le Separations						
	Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea	\$14,628,436	6	\$58,513,744 \$33,157,788	3 6	\$43,885,308 \$33,157,788
	Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	44	\$41,002,964	44	\$41,002,964
7	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	4	\$61,114,355	4	\$61,114,355
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	6	\$35,108,246	1	\$5,851,374
	O Street Undercrossing HSR - (Undeveloped) O Street Bridging HSR Trench	ea ea	\$986,065	7 0	\$6,902,455 \$0	5	\$4,930,325 \$0
	1 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702
	ding Items						
1	Intermediate Passenger Stations Bakersfield Airport Intermediate Station	ea ea	N/A \$32,430,000	1	\$32,430,000	1	\$32,430,000
	Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$32,430,000
	Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
2	Truxton (Amtrak) Intermediate Station 2 Terminal Passenger Stations	ea ea	\$165,048,000 N/A	0	\$0	0	\$0
	Parking - Structure	space	\$14,244	855	\$12,178,620	855	\$12,178,620
4	Parking - At Grade	space	\$2,042	0	\$0	0	\$0
	and Utility Relocation Single Track Relocation (Temporary)	line.	£1 002 F00	4.000	¢E 201 222	2 400	62 (00 (11
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	4.800 20.876	\$5,201,222 \$22,620,980	2.400 17.001	\$2,600,611 \$18,422,077
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	11.000 6.750	\$6,376,914 \$2,742,832	7.000 6.750	\$4,058,036 \$2,742,832
	Major Utility Relocations - Suburban	km	\$232,971	19.763	\$4,604,214	14.263	\$3,322,871
8	Major Utility Relocations - Undeveloped	km	\$11,919	105.707	\$1,259,971	101.742	\$1,212,710
	Right-of-Way Required for Each Segment		T				
_†'	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
1	Urban	hectare	\$2,332,729	16.720	\$39,003,225	10.640	\$24,820,234
-	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	12.084 57.572	\$14,094,347 \$23,502,275	12.084 40.852	\$14,094,347 \$16,676,712
\dashv	Undeveloped	hectare	\$408,227 \$291,591	268.453	\$23,502,275 \$78,278,569	40.852 256.400	\$74,763,848
2	Right-of-Way Required for Passenger Sta & Parking Facilities						
- -	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	0.000	\$0 \$0	0.000	\$0 \$0
	Suburban	hectare	\$408,227	3.178	\$1,297,347	3.178	\$1,297,347
	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
F. d.					\$30,284,931	T	\$26,722,301
	onmental Impact Mitigation	20/. /	of Line Cost		42U,ZU4,73 I		#ZU,1ZZ,3UI
1	Impact Mitigation Environmental Mitigation als and Communication	3% (of Line Cost				
1 Sign 1	Environmental Mitigation als and Communication Signaling (ATC)	km	\$720,586	143.220	\$103,202,315	129.755	\$93,499,626
1 Sign 1	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	143.220	\$85,355,298	129.755	\$77,330,518
1 Sign 1 2 3	Environmental Mitigation als and Communication Signaling (ATC)	km	\$720,586				
1 Sign 1 2 3 Elect 1	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification I tems Traction Power Supply	km km km	\$720,586 \$595,973 \$57,213 \$368,420	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320
1 Sign 1 2 3 Elect 1 2	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply Traction Power Distribution	km km km	\$720,586 \$595,973 \$57,213	143.220 143.220	\$85,355,298 \$8,194,109	129.755 129.755	\$77,330,518 \$7,423,730
1 Sign 1 2 3 Elect 1 2 Vehi	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System triffication I tems Traction Power Supply I Traction Power Distribution cle Costs	km km km	\$720,586 \$595,973 \$57,213 \$368,420	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320
Sign 1 2 3 Elect 1 2 Vehi 1 Supp	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irification Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate port Facility Costs	km km km	\$720,586 \$595,973 \$57,213 \$368,420	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
1	Environmental Mitigation als and Communication Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System triffication I tems Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Dort Facility Cost Breakdown	km km km	\$720,586 \$595,973 \$57,213 \$368,420	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
1 Sign 1 2 3 Sign 1 Vehi 1 Supp 1	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irrification I tems Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate oort Facility Costs Facility Cost Breakdown ram Implementation Costs	km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
1 2 3 3 Elect 1 2 Vehi 1 Supp 1 Prog	Environmental Mitigation als and Communication Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System triffication I tems Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate DOT Facility Costs Facility Cost Breakdown pram Implementation Costs Program Implementation Costs Ingencies	km km km	\$720,586 \$595,973 \$57,213 \$368,420	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
1 2 3 3 Elect 1 2 Vehi 1 Suppose 1 Prog 1 Cont 1	Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irrification I tems Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate DOTT Facility Costs Facility Costs Program Implementation Costs Implementation Costs Ingencies Contingencies	km km km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380 \$0 \$304,969,394	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997 \$0 \$267,525,125 \$262,279,535
1 2 3 3 Elect 1 2 Vehi 1 Suppose 1 Cont 1 Tota	Environmental Mitigation als and Communication Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System triffication I tems Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate DOT Facility Costs Facility Cost Breakdown pram Implementation Costs Program Implementation Costs Ingencies	km km km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	143.220 143.220 143.220	\$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380 \$0 \$304,969,394	129.755 129.755 129.755	\$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997 \$0 \$267,525,125

	Cost Elements	UNIT	UNIT PRICE		QUANTI	TIFS	
Aligr	nment Cost	Sitt	OHITTHISE	UPRR: to Golden S	State Station	UPRR: to Golden (Alignmen	
Trac				Quantities	Item Cost	Quantities	Item Cost
1 2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	129.465 116.875	\$98,909,221	116.000 104.110	\$88,106,430
3		km	\$1,600,459	12.590	\$20,149,782	11.890	\$19,029,460
4		km	\$1,600,459	0.000	\$0	0.000	\$0
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000 0.000	\$0 \$0
6		km	\$1,000,287	0.000	\$0	0.000	\$0
7	Freight Single Track	km	\$423,141				
Fart	Four-track construction or reconstruction nwork and Related Items	km	\$1,692,564				
	Site Preparation - Undeveloped	Hectares	\$10,294	340.526	\$3,505,399	306.736	\$3,157,566
2	Total Cut	m3	\$7.59	851,314.0	\$6,457,315	766,840.0	\$5,816,570
	Total Fill	m3	\$7.59	851,314.0	\$6,457,315	766,840.0	\$5,816,570
	Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	3.840 116.875	\$26,422 \$10,131,546	3.200 104.110	\$22,019 \$9,024,986
	Special Drainage Facilities		f Earthwork Cost	110.073	\$1,328,900	104.110	\$1,191,886
	ctures/Tunnels/Walls						
	Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	12.150 0.000	\$142,188,397 \$0	11.450 0.000	\$133,996,473 \$0
	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
	Waterway Crossing - Primary	km	\$24,606,000	0.435	\$10,703,610	0.435	\$10,703,610
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.535	\$10,539,500	0.535	\$10,539,500
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589		\$0 \$0		\$0 \$0
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$47,261,589 \$67,185,592		\$0 \$0		\$0 \$0
8	Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
	D Seismic Chamber (Drill & Blast/Mined) I Crossovers	ea ea	\$80,782,844 \$80,782,844	-	\$0 \$0		\$0 \$0
	2 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
1:	3 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
	Trench Long Mechanical & Electrical for Tunnels	km	\$33,464,567	0.000	\$0	0.000	\$0
	Retaining Walls	km km	\$1,645,723 \$3,749,214	13.900	\$52,114,074	0.000 12.100	\$45,365,489
1	Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
	Separations	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	13	\$71,841,874	13	\$71,841,874
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	16	\$14,910,169	16	\$14,910,169
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	5	\$76,392,943	5	\$76,392,943
	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	8 5	\$46,810,995 \$4,930,325	3	\$17,554,123 \$2,958,195
10	Street Bridging HSR Trench	ea	1100,000	0	\$0	0	\$0
	Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702
	Intermediate Passenger Stations	ea	N/A	1		1	
	Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
	Bakersfield Golden State Intermediate Station	ea	\$32,211,500	1	\$32,211,500	1	\$32,211,500
	Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
2	Truxton (Amtrak) Intermediate Station Terminal Passenger Stations	ea ea	\$165,048,000 N/A	0	\$0	0	\$0
	Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000
	Parking - At Grade	space	\$2,042	0	\$0	0	\$0
	and Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	6.000	\$6,501,527	3.600	\$3,900,916
	Single Track Relocation (Permanent)	km	\$1,083,588	25.751	\$27,903,471	21.876	\$23,704,568
3	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	11.000 12.300	\$6,376,914 \$4,998,049	7.000 12.300	\$4,058,036 \$4,998,049
	Major Utility Relocations - Suburban	km	\$232,971	31.900	\$7,431,787	26.400	\$6,150,445
	Major Utility Relocations - Undeveloped	km	\$11,919	74.265	\$885,199	70.300	\$837,938
	k-of-Way Right-of-Way Required for Each Segment	_					
+	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
1	Urban	hectare	\$2,332,729	22.496	\$52,477,066	16.416	\$38,294,075
-	Dense Suburban Suburban	hectare	\$1,166,364	22.040	\$25,706,671	22.040	\$25,706,671
_	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	92.568 221.890	\$37,788,798 \$64,701,018	75.848 209.836	\$30,963,235 \$61,186,296
2	Right-of-Way Required for Passenger Sta & Parking Facilities	nootare					
	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
	Urban Dense Suburban	hectare	\$2,332,729 \$1,166,364	1.266 0.000	\$2,953,235	1.266 0.000	\$2,953,235 \$0
	Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0
	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
	onmental Impact Mitigation				\$24 407 400		\$27.040.0E
	Environmental Mitigation als and Communication	3%	6 of Line Cost		\$31,426,482		\$27,863,851
	Signaling (ATC)	km	\$720,586	129.465	\$93,290,656	116.000	\$83,587,967
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	129.465	\$77,157,685	116.000	\$69,132,905
	Wayside Protection System	km	\$57,213	129.465	\$7,407,138	116.000	\$6,636,759
	Traction Power Supply	km	\$368,420	129.465	\$47,697,478	116.000	\$42,736,705
2	Traction Power Distribution	km	\$686,995	129.465	\$88,941,768	116.000	\$79,691,385
	cle Costs			7			
	Fleet Size Estimate port Facility Costs				\$0		\$0
	Facility Cost Breakdown						
Prog	ram Implementation Costs						
	Program Implementation Costs	25.5% of Tota	al Cost and Procurement		\$321,963,683		\$284,519,414
	ingencies Contingencies	25% of To	otal Construction Cost		\$315,650,669		\$278,940,602
	portunger fotos	2370 UI 1U	tar construction cost		\$1,047,549,407		\$928,795,045
Tota	I Construction				Ψ1,047,047,407		
Tota Tota	l Construction I Construction and Right of Way d Total				\$1,262,602,677 \$1,900,217,028		\$1,115,762,409 \$1,679,222,425

	_			UNUT BRIDE		CHANTIT	150		
Alig	Cost Elements lignment Cost		UNIT	UNIT PRICE	UPRR (aroun to Golden Sta (Alignme	ite Station	UPRR (around to Golden State	UPRR (around Tulare): to Golden State Station (Alignment F10)	
Tra	ck				Quantities	Item Cost	Quantities	Item Cost	
		Double Track Section - Total	km		129.957		116.492		
	2	Double Track Section - At-Grade	km	\$846,282	120.552	\$102,021,001	107.787	\$91,218,210	
	3	Double Track Section - On Structure	km	\$1,600,459	9.405 0.000	\$15,052,319	8.705 0.000	\$13,931,998	
	5	Double Track Section - In Tunnel or Subway Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	\$0 \$0	
	Ŭ	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0	
	6	Freight Double Track	km	\$846,282					
	7	Freight Single Track	km	\$423,141					
		Four-track construction or reconstruction work and Related Items	km	\$1,692,564					
		Site Preparation - Undeveloped	Hectares	\$10,294	340.437	\$3,504,492	306.648	\$3,156,659	
		Total Cut	m3	\$7.59	851,093.6	\$6,455,643	766,619.6	\$5,814,898	
		Total Fill	m3	\$7.59	851,093.6	\$6,455,643	766,619.6	\$5,814,898	
		Landscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	4.160 120.552	\$28,624 \$10,450,295	3.520 107.787	\$24,220 \$9,343,735	
		Special Drainage Facilities		Earthwork Cost	120.332	\$1,344,735	107.707	\$1,207,720	
Stru		ures/Tunnels/Walls	•						
		Standard Structure	km	\$11,702,749	8.950	\$104,739,601	8.250	\$96,547,677	
		High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000 0.000	\$0 \$0	0.000	\$0 \$0	
		Waterway Crossing - Primary	km	\$24,606,000	0.435	\$10,703,610	0.435	\$10,703,610	
		Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.555	\$10,933,500	0.555	\$10,933,500	
	5	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0	
		Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0	
		Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0	
	9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
	10	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0	
		Crossovers	ea	\$80,782,844		\$0		\$0	
		Cut & Cover Double Track Tunnel	km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0	
		Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	0.000	\$0	0.000	\$0	
		Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0	
		Retaining Walls	km	\$3,749,214	15.800	\$59,237,580	14.000	\$52,488,995	
		Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
		Single Track Cut and Cover Subway Separations	km	\$25,628,987	0.000	\$0	0.000	\$0	
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308	
		Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	22	\$121,578,557	22	\$121,578,557	
		Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	22	\$20,501,482	22	\$20,501,482	
		Street Undercrossing HSR - (Urban) Street Undercrossing HSR - (Suburban)	ea	\$15,278,589 \$5,851,374	4 8	\$61,114,355	3	\$61,114,355 \$17,554,123	
		Street Undercrossing HSR - (Undeveloped)	ea ea	\$986,065	5	\$46,810,995 \$4,930,325	3	\$2,958,195	
1	10	Street Bridging HSR Trench	ea	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0	\$0	0	\$0	
		Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702	
		ng Items	T	AL/A	1		1		
	1	Intermediate Passenger Stations Bakersfield Airport Intermediate Station	ea ea	N/A \$32,430,000	0	\$0	0	\$0	
		Bakersfield Golden State Intermediate Station	ea	\$32,211,500	1	\$32,211,500	1	\$32,211,500	
		Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
	2	Truxton (Amtrak) Intermediate Station Terminal Passenger Stations	ea	\$165,048,000 N/A	0	\$0	0	\$0	
		Parking - Structure	ea space	\$14,244	750	\$10,683,000	750	\$10,683,000	
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
		nd Utility Relocation							
		Single Track Relocation (Temporary)	km	\$1,083,588	5.600	\$6,068,092	3.200	\$3,467,481	
		Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	21.501 0.000	\$23,298,222 \$0	17.626 0.000	\$19,099,319 \$0	
		Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
	5	Major Utility Relocations - Urban	km	\$579,719	11.000	\$6,376,914	7.000	\$4,058,036	
		Major Utility Relocations - Dense Suburban	km	\$406,345	8.900	\$3,616,474	8.900	\$3,616,474	
		Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	35.842 74.215	\$8,350,160 \$884,603	30.342 70.250	\$7,068,818 \$837,343	
		Major Utility Relocations - Undeveloped of-Way	KIII	\$11,919	74.215	\$884,0U3	70.250	\$837,343	
		Right-of-Way Required for Each Segment							
П	1	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
-		Urban Donso Suburban	hectare	\$2,332,729	22.496	\$52,477,066	16.416	\$38,294,075	
+	+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	16.872 92.936	\$19,678,900 \$37,938,961	16.872 76.216	\$19,678,900 \$31,113,398	
\dashv		Undeveloped	hectare	\$291,591	221.738	\$64,656,696	209.684	\$61,141,974	
	2	Right-of-Way Required for Passenger Sta & Parking Facilities							
$\perp T$	Į	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
-+	4	Urban Dense Suburban	hectare	\$2,332,729	1.266	\$2,953,235	1.266	\$2,953,235	
-	-	Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000 0.000	\$0 \$0	0.000	\$0 \$0	
	_†	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0	
		mental Impact Mitigation							
		Environmental Mitigation s and Communication	3%	of Line Cost		\$31,551,212		\$27,988,581	
Jigi		Signaling (ATC)	km	\$720,586	129.957	\$93,645,184	116.492	\$83,942,495	
\dashv		Communications (w/Fiber Optic Backbone)	km	\$595,973	129.957	\$77,450,904	116.492	\$69,426,124	
	3	Wayside Protection System	km	\$57,213	129.957	\$7,435,287	116.492	\$6,664,908	
		ification Items							
		Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	129.957 129.957	\$47,878,741 \$89,279,770	116.492 116.492	\$42,917,967 \$80,029,386	
		e Costs	KIII	\$060,995	129.957	\$07,217,110	110.492	\$00,029,386	
	1	Fleet Size Estimate				\$0		\$0	
Sup	ро	rt Facility Costs			-				
		Facility Cost Breakdown							
		am Implementation Costs Program Implementation Costs	25.5% of Total	al Cost and Procurement		\$321,545,596		\$284,101,328	
		ngencies	23.370 UI 1018	a cost and Frocurement		#3Z1,343,370		\$204, IUI,328	
	1	Contingencies	25% of To	tal Construction Cost		\$315,240,781		\$278,530,714	
Tot		Construction				\$1,051,707,054		\$932,952,692	
		Construction and Right of Way				\$1,260,963,123		\$1,114,122,855	
Tota		Total				\$1,897,749,500		\$1,676,754,897	

	Cost Elements	UNIT	UNIT PRICE		QUANTI	TIFS	
Aligr	nment Cost	ONT	ONTTRICE	BNSF: to Golden S (Alignment	tate Station	BNSF: to Golden	
Trac	k			Quantities	Item Cost	Quantities	Item Cost
	Double Track Section - Total	km	4044,000	143.220	A440,000,044	129.755	A400.007.570
3		km km	\$846,282 \$1,600,459	133.335 9.885	\$112,839,364 \$15,819,900	120.570 9.185	\$102,036,572 \$14,699,578
4		km	\$1,600,459	0.000	\$13,817,780	0.000	\$14,077,370
5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
7		km km	\$846,282 \$423,141				
9		km	\$1.692.564				
	hwork and Related Items						
	Site Preparation - Undeveloped	Hectares	\$10,294	346.545	\$3,567,361	312.755	\$3,219,528
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	866,362.0 866.362.0	\$6,571,455 \$6,571,455	781,888.0 781,888.0	\$5,930,710 \$5,930,710
	Landscape/Erosion Control	Hectares	\$6,881	3.520	\$24,220	2.880	\$3,930,710
7	Security Fencing (Both Sides of R/W)	km	\$86,687	133.335	\$11,558,450	120.570	\$10,451,890
	Special Drainage Facilities	5% of	Earthwork Cost		\$1,414,647		\$1,277,633
	ctures/Tunnels/Walls Standard Structure	km	\$11,702,749	9.050	\$105,909,876	8.350	\$97,717,952
	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
	Waterway Crossing - Primary	km	\$24,606,000	0.290	\$7,135,740	0.290	\$7,135,740
	Waterway Crossing - Secondary (Irrigation/Canal Crossing) Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.800	\$15,760,000 \$0	0.800	\$15,760,000 \$0
	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
8	Double Track Drill & Blast	km	\$71,355,733		\$0		\$0
	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0
	D Seismic Chamber (Drill & Blast/Mined) 1 Crossovers	ea ea	\$80,782,844 \$80,782,844		\$0 \$0		\$0 \$0
	2 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
1:	3 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
	4 Trench Long	km	\$33,464,567				
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723	0.000 12.850	\$0 \$48.177.399	0.000 11.050	\$0 \$41,428,814
	7 Containment Walls	km	\$3,749,214 \$1,278,634	0.000	\$46,177,399	0.000	\$41,420,014
18	B Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
	le Separations	_					
	Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea	\$14,628,436 \$5,526,298	6	\$58,513,744 \$33,157,788	3 6	\$43,885,308 \$33,157,788
	Street Overcrossing HSR - (Suburban)	ea ea	\$5,526,298 \$931,886	44	\$41,002,964	44	\$41,002,964
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	4	\$61,114,355	4	\$61,114,355
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	6	\$35,108,246	1	\$5,851,374
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	7	\$6,902,455	5	\$4,930,325
	Street Bridging HSR Trench Minor crossing closures	ea ea	\$151,702	0	\$0 \$151,702	0	\$0 \$151,702
	ling Items	ea	\$131,702	'	\$131,702		\$151,702
	Intermediate Passenger Stations	ea	N/A	1		1	
_	Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
	Bakersfield Golden State Intermediate Station Truxton (Union Avenue) Intermediate Station	ea ea	\$32,211,500 \$32,430,000	1 0	\$32,211,500 \$0	1 0	\$32,211,500 \$0
_	Truxton (Amtrak) Intermediate Station	ea	\$165,048,000	0	\$0	0	\$0 \$0
	Terminal Passenger Stations	ea	N/A	0		0	
	Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	0	\$0
	Single Track Relocation (Temporary)	km	\$1,083,588	4.800	\$5,201,222	2.400	\$2,600,611
	Single Track Relocation (Permanent)	km	\$1,083,588	20.876	\$22,620,980	17.001	\$18,422,077
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km	\$758,511 \$579,719	0.000 11.000	\$0 \$6,376,914	0.000 7.000	\$0 \$4,058,036
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$5/9,/19 \$406,345	11.000 6.750	\$6,376,914 \$2,742,832	6.750	\$4,058,036 \$2,742,832
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km	\$232,971	19.763	\$4,604,214	14.263	\$3,322,871
8	Major Utility Relocations - Undeveloped	km	\$11,919	105.707	\$1,259,971	101.742	\$1,212,710
	t-of-Way				1	1	
1	Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	Urban	hectare	\$2,332,729	22.496	\$52,477,066	16.416	\$38,294,075
╧	Dense Suburban	hectare	\$1,166,364	11.780	\$13,739,772	11.780	\$13,739,772
Ţ	Suburban	hectare	\$408,227	57.572	\$23,502,275	40.852	\$16,676,712
_		hectare	\$291,591	268.453	\$78,278,569	256.400	\$74,763,848
	Undeveloped Dight of Way Poquired for Passonger Sta & Parking Facilities	Hectare	ı				
2	Right-of-Way Required for Passenger Sta & Parking Facilities		\$3,400,000	0.000	¢n	0.000	¢n.
2		hectare hectare	\$3,499,093 \$2,332,729	0.000 1.266	\$0 \$2,953,235	0.000 1.266	\$0 \$2,953,235
2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban	hectare hectare hectare	\$2,332,729 \$1,166,364	1.266 0.000	\$2,953,235 \$0	1.266 0.000	\$2,953,235 \$0
2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.266 0.000 0.000	\$2,953,235 \$0 \$0	1.266 0.000 0.000	\$2,953,235 \$0 \$0
	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped	hectare hectare hectare	\$2,332,729 \$1,166,364	1.266 0.000	\$2,953,235 \$0	1.266 0.000	\$2,953,235 \$0
Eviro 1	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domnental Impact Mitigation Environmental Mitigation	hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.266 0.000 0.000	\$2,953,235 \$0 \$0	1.266 0.000 0.000	\$2,953,235 \$0 \$0
Eviro 1 Sign	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation als and Communication	hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.266 0.000 0.000 0.000	\$2,953,235 \$0 \$0 \$0 \$0 \$10	1.266 0.000 0.000 0.000	\$2,953,235 \$0 \$0 \$0 \$0 \$26,584,668
Eviro 1 Sign	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC)	hectare hectare hectare hectare hectare state hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.266 0.000 0.000 0.000 1.000	\$2,953,235 \$0 \$0 \$0 \$0 \$10 \$30,147,298	1.266 0.000 0.000 0.000 1.29.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668
Eviro 1 Sign	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone)	hectare hectare hectare hectare hectare hectare km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973	1.266 0.000 0.000 0.000 143.220	\$2,953,235 \$0 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298	1.266 0.000 0.000 0.000 1.29.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518
Eviro 1 Sign 1 2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation Signaling (ATC) Communication (w/Fiber Optic Backbone)	hectare hectare hectare hectare hectare state hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.266 0.000 0.000 0.000 1.000	\$2,953,235 \$0 \$0 \$0 \$0 \$10 \$30,147,298	1.266 0.000 0.000 0.000 1.29.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668
Eviro 1 Sign 1 2 3 Elect	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply	hectare hectare hectare hectare hectare hectare km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973	1.266 0.000 0.000 0.000 143.220	\$2,953,235 \$0 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518
Eviro 1 Sign 1 2 3 Elect	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Ommental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Distribution	hectare hectare hectare hectare hectare street a street	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109	1.266 0.000 0.000 0.000 129.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730
Eviro	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (WiFiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Distribution cle Costs	hectare hectare hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
Eviro	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Dense I impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification I tems Traction Power Distribution cle Costs Fleet Size Estimate	hectare hectare hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320
Eviro	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Ommental Impact Mitigation Environmental Mitigation Is signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Urification Items Traction Power Supply Traction Power Distribution Cle Costs Fleet Size Estimate Dort Facility Costs	hectare hectare hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
Eviro 1 2 3 3 3 1 2 2 Vehi 1 1 Prog	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Supply Traction Power Supply Traction Power Distribution Cle Costs Facility Costs Facility Cost Breakdown Facility Cost Breakdown Famil mplementation Costs	hectare hectare hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
Eviror 1 2 3 3 Elect 1 2 2 Vehi 1 1 Prog	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Dommental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Dort Facility Costs Facility Costs Facility Costs Fracim Implementation Costs Program Implementation Costs	hectare hectare hectare hectare hectare hectare hectare km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997
Eviror 1 Sign 2 3 3 Elect 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Doubt Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies	hectare hectare hectare hectare hectare hectare hectare km km km km km cm km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380 \$0 \$307,532,082	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997 \$0
Eviror Sign 1 2 3 3 Elect 1 2 Vehi 1 Prog	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Distribution Cle Costs Facility Cost Breakdown Tam Implementation Costs Program Implementation Costs Ingencies Contingencies	hectare hectare hectare hectare hectare hectare hectare km km km km km cm km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380 \$0 \$307,532,082	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997 \$0 \$270,087,814
Eviror 1 Sign 2 3 Select 1 2 2 Vehi 1 Supp 1 Prog 1 T Cont Tota Tota	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Domental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Doubt Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies	hectare hectare hectare hectare hectare hectare hectare km km km km km cm km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.266 0.000 0.000 0.000 143.220 143.220 143.220	\$2,953,235 \$0 \$0 \$0 \$30,147,298 \$103,202,315 \$85,355,298 \$8,194,109 \$52,765,094 \$98,391,380 \$0 \$307,532,082	1.266 0.000 0.000 0.000 1.29.755 129.755 129.755	\$2,953,235 \$0 \$0 \$0 \$26,584,668 \$93,499,626 \$77,330,518 \$7,423,730 \$47,804,320 \$89,140,997 \$0

	0.151	LUNUT	LINIT DDIOE		OHABITI	TIFC	
Aligr	Cost Elements nment Cost	UNIT	UNIT PRICE	UPRR: to Truxtun (L (Alignme	,	UPRR (around to Truxtun (Union (Alignmen	n Ave Station)
Trac	k			Quantities	Item Cost	Quantities	Item Cost
	Double Track Section - Total	km		118.114		118.606	
3		km km	\$846,282 \$1,600,459	108.524 9.590	\$91,841,920 \$15,348,404	112.201 6.405	\$94,953,699 \$10,250,942
4		km	\$1,600,459	0.000	\$13,346,404	0.000	\$10,230,742
5		km	\$1,600,459	0.000	\$0	0.000	\$0
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
7		km km	\$846,282 \$423,141				
9		km	\$1,692,564				
	hwork and Related Items						
	Site Preparation - Undeveloped	Hectares	\$10,294	318.483	\$3,278,486	318.394	\$3,277,579
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	796,206.4 796,206.4	\$6,039,317 \$6,039,317	795,986.0 795,986.0	\$6,037,645 \$6,037,645
	Landscape/Erosion Control	Hectares	\$6,881	2.880	\$19,817	3.200	\$22,019
	Security Fencing (Both Sides of R/W)	km	\$86,687	108.524	\$9,407,623	112.201	\$9,726,371
	Special Drainage Facilities	5% of	Earthwork Cost		\$1,239,228		\$1,255,063
	Standard Structure	km	\$11,702,749	9.150	\$107,080,151	5.950	\$69,631,355
2	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.340 0.515	\$8,366,040 \$10,145,500	0.340 0.535	\$8,366,040 \$10,539,500
5	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.515	\$10,143,300	0.333	\$10,557,500
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
	Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
	D Seismic Chamber (Drill & Blast/Mined)	ea	\$82,012,758		\$0		\$0
1	1 Crossovers	ea	\$80,782,844		\$0		\$0
	2 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
	Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	0.000	\$0	0.000	\$0
	5 Mechanical & Electrical for Tunnels	km	\$33,464,567	0.000	\$0	0.000	\$0
10	6 Retaining Walls	km	\$3,749,214	11.500	\$43,115,960	13.400	\$50,239,467
	7 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
	B Single Track Cut and Cover Subway Le Separations	km	\$25,628,987	0.000	\$0	0.000	\$0
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	20	\$292,568,719	20	\$292,568,719
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	13	\$71,841,874	22	\$121,578,557
	Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea	\$931,886 \$15,278,589	16	\$14,910,169	22	\$20,501,482 \$15,278,589
	Street Undercrossing HSR - (Grant)	ea ea	\$5,851,374	3	\$30,557,177 \$17,554,123	3	\$15,278,589
9	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	3	\$2,958,195	3	\$2,958,195
	Street Bridging HSR Trench	ea		0	\$0	0	\$0
	1 Minor crossing closures 1 Minor I tems	ea	\$151,702	1	\$151,702	1	\$151,702
	Intermediate Passenger Stations	ea	N/A	1		1	
	Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
	Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$0
	Truxton (Union Avenue) Intermediate Station Truxton (Amtrak) Intermediate Station	ea ea	\$32,430,000 \$165,048,000	1 0	\$32,430,000 \$0	1 0	\$32,430,000 \$0
2	Terminal Passenger Stations	ea	N/A	0	40	0	40
3	Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000
Dail	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	0	\$0
	Single Track Relocation (Temporary)	km	\$1,083,588	2.800	\$3,034,046	2.400	\$2,600,611
	Single Track Relocation (Permanent)	km	\$1,083,588	14.751	\$15,984,004	10.501	\$11,378,756
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km	\$758,511 \$579,719	0.000 9.114	\$0 \$5,283,564	0.000	\$0 \$5,283,564
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	12.300	\$5,283,564 \$4,998,049	9.114 8.900	\$5,283,564 \$3,616,474
7	Major Utility Relocations - Suburban	km	\$232,971	26.400	\$6,150,445	30.342	\$7,068,818
	Major Utility Relocations - Undeveloped	km	\$11,919	70.300	\$837,938	70.250	\$837,343
	k-of-Way Right-of-Way Required for Each Segment					T	
+	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
	Urban	hectare	\$2,332,729	26.187	\$61,086,141	26.187	\$61,086,141
+	Dense Suburban	hectare	\$1,166,364	20.520	\$23,933,797	15.352	\$17,906,026
+	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	75.848 209.836	\$30,963,235 \$61,186,296	76.216 209.684	\$31,113,398 \$61,141,974
2		nottare		207.000	\$51,100,270	207.004	\$31,141,7/4
	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
+	Urban Pense Suburban	hectare	\$2,332,729	1.130	\$2,635,983	1.130	\$2,635,983
+	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408.227	0.000	\$0 \$0	0.000	\$0 \$0
\pm	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0
							45
	onmental Impact Mitigation		f.1. 0 i				\$33,088,303
1	nmental Impact Mitigation Environmental Mitigation	3%	of Line Cost		\$32,963,574		400,000,000
1 Sign	onmental Impact Mitigation	3%	of Line Cost \$720,586	118.114	\$32,963,574 \$85,111,285	118.606	\$85,465,813
1 Sign 1	Environmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communication (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	118.114	\$85,111,285 \$70,392,792	118.606	\$85,465,813 \$70,686,011
1 Sign 1 2	Inmental Impact Mitigation Environmental Mitigation Sal and Communication Signaling (ATC) Communication (WFiber Optic Backbone) Wayside Protection System	km	\$720,586		\$85,111,285		\$85,465,813
Sign 1 2 3 Elect	Invironmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System Infification Items	km km km	\$720,586 \$595,973 \$57,213	118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857
1 Sign	Invironmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Wayside Protection System Variation Power Supply Traction Power Distribution	km km	\$720,586 \$595,973	118.114	\$85,111,285 \$70,392,792	118.606	\$85,465,813 \$70,686,011
Sign 1 2 3 Elect 1 2 Vehi	Environmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply Traction Power Distribution cle Costs	km km km	\$720,586 \$595,973 \$57,213 \$368,420	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693
1 2 3 Elect 1 2 Vehi	Environmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Triffication Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate	km km km	\$720,586 \$595,973 \$57,213 \$368,420	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807
Sign 1 2 3 Elect 1 2 Vehi 1 Supp	Invironmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Wayside Protection System Trigation Items Traction Power Supply Traction Power Distribution Cle Costs Fleet Size Estimate For Tacility Costs	km km km	\$720,586 \$595,973 \$57,213 \$368,420	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693
1 2 3 3 Elect 1 2 Vehi 1 Supp	Environmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Triffication Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate	km km km	\$720,586 \$595,973 \$57,213 \$368,420	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693
1 2 3 Elect 1 2 Vehi 1 Supp 1	Inmental Impact Mitigation	km km km	\$720,586 \$595,973 \$57,213 \$368,420	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693
1 2 3 3 Elect 1 2 Vehi 1 Supp 1 Prog 1 Cont Cont	Invironmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Dort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies	km km km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691 \$0	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693 \$0
1 2 3 3 Elect 1 2 2 Vehi 1 Suppose 1 Prog	Impart Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communication(Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Trification Items Traction Power Supply Traction Power Distribution Cle Costs Fleet Size Estimate DOTF Facility Costs Facility Cost Breakdown Tram Implementation Costs Program Implementation Costs Ingencies Contingencies	km km km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691 \$0 \$334,446,478	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693 \$0 \$334,028,392
1 Sign	Invironmental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate Doort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies	km km km km km	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	118.114 118.114 118.114	\$85,111,285 \$70,392,792 \$6,757,708 \$43,515,544 \$81,143,691 \$0	118.606 118.606	\$85,465,813 \$70,686,011 \$6,785,857 \$43,696,807 \$81,481,693 \$0

	Cost Elements	UNIT	UNIT PRICE		QUANT	ITIFS	
Aligr	nment Cost	Citi	ONTTRICE	UPRR:to Truxtun (Amtrak) Station	UPRR:to Truxtun (• •
Trac	k			Quantities	Item Cost	Quantities	Item Cost
1 2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	135.661 115.949	\$98,125,903	122.196 103.184	\$87,323,112
3		km	\$1,600,459	19.712	\$31,547,613	19.012	\$30,427,291
4		km	\$1,600,459	0.000	\$0	0.000	\$0
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
6		km	\$1,000,287	0.000	\$0	0.000	\$0
7	Freight Single Track	km	\$423,141				
Farti	Four-track construction or reconstruction nwork and Related Items	km	\$1,692,564				
	Site Preparation - Undeveloped	Hectares	\$10,294	342.369	\$3,524,376	308.579	\$3,176,543
2	Total Cut	m3	\$7.59	855,922.6	\$6,492,271	771,448.6	\$5,851,526
	Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	855,922.6 3.840	\$6,492,271 \$26,422	771,448.6 3.200	\$5,851,526 \$22,019
7	Security Fencing (Both Sides of R/W)	km	\$86,687	115.949	\$10,051,309	103.184	\$8,944,749
	Special Drainage Facilities	5% of	Earthwork Cost		\$1,329,332		\$1,192,318
	ctures/Tunnels/Walls Standard Structure	km	\$11,702,749	23.650	\$276,770,008	22.950	\$268,578,084
	High Structure	km	\$14,043,299	0.000	\$270,770,008	0.000	\$200,570,004
3	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$24,606,000 \$19,700,000	0.245 0.560	\$6,028,470 \$11,032,000	0.245 0.560	\$6,028,470 \$11,032,000
5	Twin Single Track Drill & Blast (<6 Miles)	km km	\$63,942,150	0.360	\$11,032,000	0.360	\$11,032,000
6	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km	\$67,185,592		\$0		\$0
	Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
10	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0
	1 Crossovers	ea	\$80,782,844		\$0		\$0
	2 Cut & Cover Double Track Tunnel 3 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	\$0 \$0
1.	4 Trench Long	km	\$33,464,567		Ψ0	0.000	
	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	\$0
	6 Retaining Walls 7 Containment Walls	km km	\$3,749,214 \$1,278,634	13.550 0.000	\$50,801,849 \$0	11.750 0.000	\$44,053,264 \$0
	B Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0
	le Separations						
	Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	17	\$58,513,744 \$93,947,066	3 17	\$43,885,308 \$93,947,066
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	28	\$26,092,795	28	\$26,092,795
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	1	\$15,278,589	1	\$15,278,589
	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	9 5	\$52,662,369 \$4,930,325	4 3	\$23,405,498 \$2,958,195
	Street Bridging HSR Trench	ea	\$700,003	0	\$4,730,323	0	\$2,738,173
	1 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702
	Intermediate Passenger Stations	ea	N/A	1		1	
	Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
	Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$0
	Truxton (Union Avenue) Intermediate Station Truxton (Amtrak) Intermediate Station	ea	\$32,430,000 \$165,048,000	0	\$0 \$165,048,000	0	\$0 \$165,048,000
2	Terminal Passenger Stations	ea ea	\$165,046,000 N/A	0	\$100,040,000	0	\$165,046,000
3	Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000
	Parking - At Grade and Utility Relocation	space	\$2,042	0	\$0	0	\$0
	Single Track Relocation (Temporary)	km	\$1,083,588	5.600	\$6,068,092	3.200	\$3,467,481
	Single Track Relocation (Permanent)	km	\$1,083,588	24.323	\$26,355,565	20.448	\$22,156,663
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	0.000 14.510	\$0 \$8,411,730	0.000 10.510	\$0 \$6,092,852
6	Major Utility Relocations - Dense Suburban	km	\$406,345	10.300	\$4,185,358	10.300	\$4,185,358
	Major Utility Relocations - Suburban	km	\$232,971	29.150	\$6,791,116	23.650	\$5,509,773
	Major Utility Relocations - Undeveloped t-of-Way	km	\$11,919	87.201	\$1,039,389	83.236	\$992,129
	Right-of-Way Required for Each Segment						
H	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
\vdash	Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	31.570 18.392	\$73,645,180 \$21,451,774	25.490 18.392	\$59,462,189 \$21,451,774
	Suburban Suburban	hectare	\$408,227	81.510	\$33,274,619	64.790	\$26,449,056
	Undeveloped	hectare	\$291,591	245.027	\$71,447,688	232.973	\$67,932,966
2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban	hostoro	¢2.400.002	0.000	0.0	0.000	¢0
\vdash	Urban Urban	hectare hectare	\$3,499,093 \$2,332,729	0.000 1.300	\$0 \$3,032,547	0.000 1.300	\$0 \$3,032,547
	Dense Suburban	hectare	\$1,166,364	0.000	\$0	0.000	\$0
$\vdash \vdash$	Suburban Undeveloped	hectare hectare	\$408,227 \$291,591	0.000 0.000	\$0 \$0	0.000	\$0 \$0
Eviro	onmental Impact Mitigation	nectare	\$291,591	0.000	\$0	0.000	\$0
1	Environmental Mitigation	3%	of Line Cost		\$39,357,799		\$35,795,168
	als and Communication	1	\$700 FO/	405 444	#07 7FF 101	400.407	800 CEC 747
1 2	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	135.661 135.661	\$97,755,406 \$80,850,336	122.196 122.196	\$88,052,717 \$72,825,555
	Wayside Protection System	km	\$57,213	135.661	\$7,761,632	122.196	\$6,991,253
	trification Items				440.000		A45.515.15
	Traction Power Supply Traction Power Distribution	km km	\$368,420 \$686,995	135.661 135.661	\$49,980,208 \$93,198,387	122.196 122.196	\$45,019,434 \$83,948,004
Vehi	cle Costs	AIII	9000,773	133.001		122.170	\$00,770,004
	Fleet Size Estimate				\$0		\$0
	Pacility Costs Facility Cost Breakdown				T	T	
	ram Implementation Costs						
1	Program Implementation Costs	25.5% of Tota	al Cost and Procurement		\$396,304,742		\$358,860,473
Cont	ingencies	250/ -67	tal Capatruatic - Ct		\$200 F24 0/*		\$354 B33 BC4
		25% OT LO	tal Construction Cost		\$388,534,061		\$351,823,994
1	Contingencies I Construction				\$1,311,926,635		1,193,172,274
Tota Tota					\$1,311,926,635 \$1,554,136,242 \$2,338,975,045		1,193,172,274 1,407,295,974 2,117,980,441

Cost Elements	LINIT	LINUT DDIOE		OLIANITI	TIFC	
	UNIT	UNIT PRICE	QUANTI* UPRR (around Tulare): to Truxtun (Amtrak) Station (Alignment F17)		UPRR (around Tulare): to Truxtun (Amtrak) Station (Alignment F18)	
rack			Quantities	Item Cost	Quantities	Item Cost
1 Double Track Section - Total	km		136.153		122.688	
Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	119.626 16.527	\$101,237,682 \$26,450,150	106.861 15.827	\$90,434,891 \$25,329,828
4 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$26,430,130	0.000	\$25,324,626
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
6 Freight Double Track 7 Freight Single Track	km	\$846,282 \$423,141				
Four-track construction or reconstruction	km km	\$1,692,564				
arthwork and Related Items						
Site Preparation - Undeveloped	Hectares	\$10,294	342.281	\$3,523,468	308.491	\$3,175,635
2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	855,702.2 855,702.2	\$6,490,600 \$6,490,600	771,228.2 771,228.2	\$5,849,855 \$5,849,855
6 Landscape/Erosion Control	Hectares	\$6,881	4.160	\$28,624	3.520	\$24,220
7 Security Fencing (Both Sides of R/W)	km	\$86,687	119.626	\$10,370,057	106.861	\$9,263,497
8 Special Drainage Facilities Structures/Tunnels/Walls	5% of	Earthwork Cost		\$1,345,167		\$1,208,153
1 Standard Structure	km	\$11,702,749	20.450	\$239,321,212	19.750	\$231,129,288
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0
Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$24,606,000	0.245 0.580	\$6,028,470 \$11,426,000	0.245 0.580	\$6,028,470 \$11,426,000
5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.580	\$11,426,000	0.580	\$11,426,000
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0
B Double Track Drill & Blast Double Track Mined (Soft Soil)	km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0
9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		\$0 \$0
11 Crossovers	ea	\$80,782,844		\$0		\$0
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0
16 Retaining Walls	km	\$3,749,214	15.450	\$57,925,356	13.650	\$51,176,770
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0
18 Single Track Cut and Cover Subway Grade Separations	km	\$25,628,987	0.000	\$0	0.000	\$0
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	26	\$143,683,749	26	\$143,683,749
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	34	\$31,684,109	34	\$31,684,109
7 Street Undercrossing HSR - (Urban) 8 Street Undercrossing HSR - (Suburban)	ea	\$15,278,589	0 9	\$0	0	\$0
9 Street Undercrossing HSR - (Suburban) 9 Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	5	\$52,662,369 \$4,930,325	3	\$23,405,498 \$2,958,195
10 Street Bridging HSR Trench	ea	1100,000	0	\$0	0	\$0
21 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702
Building Items 1 Intermediate Passenger Stations		N/A	1		1	
Bakersfield Airport Intermediate Station	ea ea	\$32,430,000	0	\$0	0	\$0
Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$0
Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0
Truxton (Amtrak) Intermediate Station 2 Terminal Passenger Stations	ea ea	\$165,048,000 N/A	1 0	\$165,048,000	1 0	\$165,048,000
3 Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$0
Rail and Utility Relocation		44 000 500	5.000	45 (04 (57	0.000	40.004.044
Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	5.200 20.073	\$5,634,657 \$21,750,317	2.800 16.198	\$3,034,046 \$17,551,414
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0
5 Major Utility Relocations - Urban	km	\$579,719	14.510	\$8,411,730	10.510	\$6,092,852 \$2,803,784
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	6.900 33.092	\$2,803,784 \$7,709,489	6.900 27.592	\$2,803,784 \$6,428,147
8 Major Utility Relocations - Undeveloped	km	\$11,919	87.151	\$1,038,793	83.186	\$991,533
Right-of-Way						
Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0
Urban Urban	nectare hectare	\$3,499,093	31.570	\$73,645,180	25.490	\$59,462,189
Dense Suburban	hectare	\$1,166,364	13.224	\$15,424,002	13.224	\$15,424,002
Suburban	hectare	\$408,227	81.878	\$33,424,782	65.158	\$26,599,219
Undeveloped	hectare	\$291,591	244.875	\$71,403,366	232.821	\$67,888,644
	hectare	\$3,499,093	0.000	\$0	0.000	\$0
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban	hectare	\$2,332,729	1.300	\$3,032,547	1.300	\$3,032,547
Dense Urban Urban	ricctarc		0.000	\$0	0.000	\$0
Dense Urban Urban Dense Suburban	hectare	\$1,166,364				
Dense Urban Urban Dense Suburban Suburban	hectare hectare	\$408,227	0.000	\$0	0.000	\$0
Dense Urban Urban Dense Suburban	hectare				0.000 0.000	
Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation	hectare hectare hectare	\$408,227	0.000	\$0		\$0
Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Svironmental Impact Mitigation 1 Environmental Mitgation ignals and Communication	hectare hectare hectare	\$408,227 \$291,591 of Line Cost	0.000	\$0 \$0 \$39,482,528	0.000	\$0 \$0 \$35,919,898
Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC)	hectare hectare hectare saw as well as	\$408,227 \$291,591 of Line Cost \$720,586	0.000 0.000	\$0 \$0 \$39,482,528 \$98,109,935	0.000	\$0 \$0 \$35,919,898 \$88,407,245
Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Svironmental Impact Mitigation 1 Environmental Mitgation ignals and Communication	hectare hectare hectare	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973	0.000	\$0 \$0 \$39,482,528	0.000 122.688 122.688	\$0 \$0 \$35,919,898
Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System Lectrification I tems	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0,000 0,000 136,153 136,153 136,153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781	0.000 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402
Dense Urban Urban Dense Suburban Suburban Undeveloped Urronmental Impact Mitigation 1 Environmental Mitigation 1 Signalis and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697
Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Vironmental Impact Mitigation 1 Environmental Mitigation 2 Environmental Mitigation 3 Isignaling (ATC) 2 Communication (WFiber Optic Backbone) 3 Wayside Protection System 1 Traction Power Supply 2 Traction Power Distribution	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0,000 0,000 136,153 136,153 136,153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781	0.000 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402
Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Evironmental Impact Mitigation I Environmental Mitigation I Environmental Mitigation Signals and Communication I Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System I Traction Power Supply 2 Traction Power Distribution Fehicle Costs	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697
Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Vironmental Impact Mitigation I Environmental Mitigation Signals and Communication I Signaling (ATC) Communication System I Traction Power Supply I Traction Power Supply I Traction Power Supply I Traction Power Distribution Cehicle Costs I Fleet Size Estimate Support Facility Costs	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005
Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Dense Suburban Suburban Indeveloped Dense Suburban Dense	hectare hectare hectare 3% km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005
Dense Urban Urban Dense Suburban Suburban Undeveloped Urronmental Impact Mitigation 1 Environmental Mitigation 1 Environmental Mitigation 1 Signalia and Communication 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System 1 Traction Power Supply 2 Traction Power Distribution Proceeding Costs 1 Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown Program Implementation Costs	hectare hectare hectare 3% km km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005
Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Dense Suburban Suburban Indeveloped Dense Suburban Dense	hectare hectare hectare 3% km km km km	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005
Dense Urban Urban Dense Suburban Suburban Undeveloped Urronmental Impact Mitigation 1 Environmental Mitigation 1 Isignalia (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Distribution //ehicle Costs 1 Fleet Size Estimate support Facility Cost Breakdown Program Implementation Costs 1 Program Implementation Costs contingencies 1 Contingencies	hectare hectare hectare hectare 3% km km km km km km km k	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389 \$0 \$395,886,656	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005 \$0 \$358,442,387
Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Dense Suburban Suburban Indeveloped Dense Suburban Den	hectare hectare hectare hectare 3% km km km km km km km k	\$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 136.153 136.153 136.153 136.153	\$0 \$0 \$39,482,528 \$98,109,935 \$81,143,555 \$7,789,781 \$50,161,470 \$93,536,389 \$0	122.688 122.688 122.688 122.688	\$0 \$0 \$35,919,898 \$88,407,245 \$73,118,774 \$7,019,402 \$45,200,697 \$84,286,005 \$0

	Cost Elements	UNIT	UNIT PRICE		QUANT	ITIES		
Aligr	ment Cost	J	0.00.7	UPRR: to Truxtun (Amtrak) Station	UPRR: to Truxtun (Amtrak) Station (Alignment F20)		
Trac				Quantities	Item Cost	Quantities	Item Cost	
1 2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	144.409 123.455	\$104,477,758	130.944 110.690	\$93,674,967	
3		km	\$1,600,459	20.954	\$33,536,023	20.254	\$32,415,702	
4		km	\$1,600,459	0.000	\$0	0.000	\$0	
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0	
6		km	\$846,282	0.000	40	0.000	40	
7		km	\$423,141					
9 Earth	Four-track construction or reconstruction	km	\$1,692,564					
1	Site Preparation - Undeveloped	Hectares	\$10,294	343.274	\$3,533,687	309.484	\$3,185,854	
	Total Cut	m3	\$7.59	858,184.0	\$6,509,424	773,710.0	\$5,868,679	
	Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	858,184.0 5.120	\$6,509,424 \$35,230	773,710.0 4.480	\$5,868,679 \$30,826	
7	Security Fencing (Both Sides of R/W)	km	\$86,687	123.455	\$10,701,947	110.690	\$9,595,387	
	Special Drainage Facilities Etures/Tunnels/Walls	5% of	f Earthwork Cost		\$1,364,486		\$1,227,471	
	Standard Structure	km	\$11,702,749	20.484	\$239,719,105	19.784	\$231,527,181	
2	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0	
3	Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.340 0.610	\$8,366,040 \$12,017,000	0.340 0.610	\$8,366,040 \$12,017,000	
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0	
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0	
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0	
9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		\$0	
	Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0	
	Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0	
	Trench Long	km	\$33,464,567					
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000 19.100	\$0 \$71,609,986	0.000 17.300	\$0 \$64,861,401	
	Containment Walls	km	\$1,278,634	0.000	\$71,007,700	0.000	\$04,801,401	
	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$0	
	e Separations Street Overcrossing HSR - (Urban)	ea	\$14,628,436	7	\$102,399,052	6	\$87,770,616	
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	18	\$99,473,364	18	\$99,473,364	
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	16	\$14,910,169	16	\$14,910,169	
	Street Undercrossing HSR - (Urban) Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	5 8	\$76,392,943 \$46,810,995	5 3	\$76,392,943 \$17,554,123	
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	5	\$4,930,325	3	\$2,958,195	
	Street Bridging HSR Trench	ea		0	\$0	0	\$0	
	Minor crossing closures ling Items	ea	\$151,702	1	\$151,702	1	\$151,702	
	Intermediate Passenger Stations	ea	N/A	1		1		
	Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
-	Bakersfield Golden State Intermediate Station Truxton (Union Avenue) Intermediate Station	ea ea	\$32,211,500 \$32,430,000	0	\$0 \$0	0	\$0 \$0	
	Truxton (Amtrak) Intermediate Station	ea	\$165,048,000	1	\$165,048,000	1	\$165,048,000	
	Terminal Passenger Stations	ea	N/A	0		0		
	Parking - Structure Parking - At Grade	space space	\$14,244 \$2,042	750 0	\$10,683,000 \$0	750 0	\$10,683,000 \$0	
	and Utility Relocation	space	\$2,042	U	\$0	Ü	\$0	
	Single Track Relocation (Temporary)	km	\$1,083,588	6.000	\$6,501,527	3.600	\$3,900,916	
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	34.886 0.000	\$37,802,046 \$0	31.011 0.000	\$33,603,143 \$0	
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
5	Major Utility Relocations - Urban	km	\$579,719	19.360	\$11,223,369	15.360	\$8,904,491	
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	14.384 36.400	\$5,844,873 \$8,480,158	14.384 30.900	\$5,844,873 \$7,198,816	
	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km	\$232,971 \$11,919	74.265	\$885,199	70.300	\$837,938	
	t-of-Way							
1	Right-of-Way Required for Each Segment Dense Urban	hostoro	\$3,499,093	0.000	\$0	0.000	\$0	
	Urban Urban	hectare hectare	\$3,499,093	29.424	\$68,638,584	23.344	\$0 \$54,455,593	
	Dense Suburban	hectare	\$1,166,364	23.688	\$27,628,466	23.688	\$27,628,466	
$\vdash \vdash$	Suburban Undeveloped	hectare	\$408,227 \$291,591	99.408 221.890	\$40,581,074 \$64,701,018	82.688 209.836	\$33,755,511 \$61,186,296	
2	· ·	hectare	\$291,591	221.890	\$04,701,018	209.836	\$01,186,296	
	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
	Urban	hectare	\$2,332,729	1.320	\$3,079,202	1.320	\$3,079,202	
\vdash	Dense Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	\$0 \$0	
	Undeveloped	hectare	\$291,591	0.000	\$0	0.000	\$0	
	nmental Impact Mitigation		(of Line Ct		#43 304 400		620 /50 7/5	
	Environmental Mitigation als and Communication	3%	6 of Line Cost		\$43,221,400		\$39,658,769	
	Signaling (ATC)	km	\$720,586	144.409	\$104,059,092	130.944	\$94,356,403	
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	144.409	\$86,063,911	130.944	\$78,039,130	
	Wayside Protection System rification Items	km	\$57,213	144.409	\$8,262,135	130.944	\$7,491,756	
1	Traction Power Supply	km	\$368,420	144.409	\$53,203,145	130.944	\$48,242,371	
2	Traction Power Distribution	km	\$686,995	144.409	\$99,208,217	130.944	\$89,957,833	
	cle Costs				\$0		\$0	
			ı		ΦU		U¢	
1	Fleet Size Estimate ort Facility Costs							
1 Supp 1	Facility Costs Facility Cost Breakdown							
Supp 1 Prog	ort Facility Costs Facility Cost Breakdown ram Implementation Costs	25 50% of T-1	al Cost and Progression		\$420 E02 E0E		\$202 120 21/	
Supp 1 Prog	Facility Costs Facility Cost Breakdown	25.5% of Total	al Cost and Procurement		\$430,583,585		\$393,139,316	
Supp 1 Prog 1 Cont	ort Facility Costs Facility Cost Breakdown Fam Implementation Costs Program Implementation Costs Ingencies Contingencies		al Cost and Procurement otal Construction Cost		\$422,140,769		\$385,430,702	
Supp Prog 1 Cont	ort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs ingencies							

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Cost Elements Alignment Cost	UNIT	UNIT PRICE	UPRR (around to Truxtun (Amtr (Alignment	ak) Station	UPRR (around Tulare): to Truxtun (Amtrak) Station (Alignment F22)		
Track			Quantities	Item Cost	Quantities	Item Cost	
Double Track Section - Total	km		144.901		131.436		
2 Double Track Section - At-Grade 3 Double Track Section - On Structure	km km	\$846,282 \$1,600,459	127.132 17.769	\$107,589,537 \$28,438,560	114.367 17.069	\$96,786,746 \$27,318,239	
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$20,430,300	0.000	\$27,310,239	
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$0	
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0	
6 Freight Double Track 7 Freight Single Track	km km	\$846,282 \$423,141					
9 Four-track construction or reconstruction	km	\$1,692,564					
Earthwork and Related Items							
Site Preparation - Undeveloped	Hectares	\$10,294	343.185	\$3,532,780	309.396	\$3,184,947	
2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	857,963.6 857,963.6	\$6,507,753 \$6,507,753	773,489.6 773,489.6	\$5,867,008 \$5,867,008	
6 Landscape/Erosion Control	Hectares	\$6,881	5.440	\$37,431	4.800	\$3,007,008	
7 Security Fencing (Both Sides of R/W)	km	\$86,687	127.132	\$11,020,695	114.367	\$9,914,135	
8 Special Drainage Facilities Structures/Tunnels/Walls	5% of	Earthwork Cost		\$1,380,321		\$1,243,306	
1 Standard Structure	km	\$11,702,749	17.284	\$202,270,309	16.584	\$194,078,385	
2 High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0	
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	\$0	
Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$24,606,000	0.340 0.630	\$8,366,040 \$12,411,000	0.340 0.630	\$8,366,040 \$12,411,000	
5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.630	\$12,411,000	0.630	\$12,411,000	
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0	
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		\$0	
B Double Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758		\$0 \$0		\$0 \$0	
9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758		\$0 \$0		\$0 \$0	
11 Crossovers	ea	\$80,782,844		\$0		\$0	
12 Cut & Cover Double Track Tunnel	km	\$41,006,379		\$0		\$0	
13 Trench Short 14 Trench Long	km	\$42,322,835	0.000	\$0	0.000	\$0	
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0	0.000	\$0	
16 Retaining Walls	km	\$3,749,214	21.000	\$78,733,493	19.200	\$71,984,908	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
18 Single Track Cut and Cover Subway Grade Separations	km	\$25,628,987	0.000	\$0	0.000	\$0	
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	7	\$102,399,052	6	\$87,770,616	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	27	\$149,210,047	27	\$149,210,047	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	22	\$20,501,482	22	\$20,501,482	
7 Street Undercrossing HSR - (Urban) 8 Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	4 8	\$61,114,355 \$46,810,995	3	\$61,114,355 \$17,554,123	
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	5	\$4,930,325	3	\$2,958,195	
10 Street Bridging HSR Trench	ea	·	0	\$0	0	\$0	
21 Minor crossing closures	ea	\$151,702	1	\$151,702	1	\$151,702	
Building Items 1 Intermediate Passenger Stations	ea	N/A	1		1		
Bakersfield Airport Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
Bakersfield Golden State Intermediate Station	ea	\$32,211,500	0	\$0	0	\$0	
Truxton (Union Avenue) Intermediate Station Truxton (Amtrak) Intermediate Station	ea	\$32,430,000	0	\$0 \$165,048,000	0	\$0 \$165,048,000	
2 Terminal Passenger Stations	ea ea	\$165,048,000 N/A	0	\$105,048,000	0	\$105,048,000	
3 Parking - Structure	space	\$14,244	750	\$10,683,000	750	\$10,683,000	
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
Rail and Utility Relocation 1 Single Track Relocation (Temporary)	len	\$1,083,588	5.600	\$6,068,092	3.200	\$3,467,481	
2 Single Track Relocation (Temporary)	km km	\$1,083,588	30.636	\$33,196,797	26.761	\$28,997,894	
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$0	
5 Major Utility Relocations - Urban 6 Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	19.360 10.984	\$11,223,369 \$4,463,298	15.360 10.984	\$8,904,491 \$4,463,298	
7 Major Utility Relocations - Dense Suburban	km	\$232,971	40.342	\$9,398,532	34.842	\$4,463,298	
8 Major Utility Relocations - Undeveloped	km	\$11,919	74.215	\$884,603	70.250	\$837,343	
Right-of-Way							
Right-of-Way Required for Each Segment Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
Urban	hectare	\$2,332,729	29.424	\$68,638,584	23.344	\$54,455,593	
Dense Suburban	hectare	\$1,166,364	18.520	\$21,600,695	18.520	\$21,600,695	
Suburban	hectare	\$408,227	99.776	\$40,731,236	83.056	\$33,905,674	
Undeveloped	hectare	\$291,591	221.738	\$64,656,696	209.684	\$61,141,974	
					0.000	\$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000		
Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban	hectare	\$2,332,729	1.320	\$3,079,202	1.320	\$3,079,202	
Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	1.320 0.000	\$3,079,202 \$0	1.320 0.000	\$3,079,202 \$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban	hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.320 0.000 0.000	\$3,079,202 \$0 \$0	1.320 0.000 0.000	\$3,079,202 \$0 \$0	
Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped	hectare hectare	\$2,332,729 \$1,166,364	1.320 0.000	\$3,079,202 \$0	1.320 0.000	\$3,079,202 \$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitgation	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.320 0.000 0.000	\$3,079,202 \$0 \$0	1.320 0.000 0.000	\$3,079,202 \$0 \$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.320 0.000 0.000 0.000	\$3,079,202 \$0 \$0 \$0 \$0 \$0	1.320 0.000 0.000 0.000	\$3,079,202 \$0 \$0 \$0 \$0 \$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC)	hectare hectare hectare hectare hectare ketare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.320 0.000 0.000 0.000 1.000	\$3,079,202 \$0 \$0 \$0 \$0 \$0 \$10 \$43,346,129	1.320 0.000 0.000 0.000 1.31.436	\$3,079,202 \$0 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communication System 3 Wayside Protection System	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.320 0.000 0.000 0.000	\$3,079,202 \$0 \$0 \$0 \$0 \$0	1.320 0.000 0.000 0.000	\$3,079,202 \$0 \$0 \$0 \$0 \$0	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System Electrification I tems	hectare hectare hectare hectare hectare significant with the control of the cont	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 1.44.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$0 \$104,413,620 \$86,357,129 \$82,90,284	1.320 0.000 0.000 0.000 131.436 131.436 131.436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 [Environmental Mitigation 3 [Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply	hectare hectare hectare hectare hectare km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Distribution	hectare hectare hectare hectare hectare significant with the control of the cont	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 1.44.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$0 \$104,413,620 \$86,357,129 \$82,90,284	1.320 0.000 0.000 0.000 131.436 131.436 131.436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (Wriber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate	hectare hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs	hectare hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$1 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Fleet Size Estimate Support Facility Costs 1 Fleatility Cost Breakdown	hectare hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$1 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (Wriber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Supply 1 Fleet Size Estimate Support Facility Costs 1 Fleet Size Estimate Support Facility Costs 1 Fleetlity Cost Breakdown Program Implementation Costs	hectare hectare hectare hectare hectare swm km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$0 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Indeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communication (Wriber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 Fleet Size Estimate Support Facility Costs 1 Fleet Size Isstimate Support Facility Costs 1 Fleatility Cost Breakdown	hectare hectare hectare hectare hectare swm km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$1 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Evironmental Impact Mitigation 1 Environmental Mitigation 1 Signaling (ATC) Communications (W/Fiber Optic Backbone) 3 Wayside Protection System Electrification I tems 1 Traction Power Supply 2 Traction Power Supply 1 Traction Power Supply 1 I Fleet Size Estimate Support Facility Costs 1 Facility Costs 1 Facility Cost Breakdown Program Implementation Costs Contingencies 1 Program Implementation Costs Contingencies 1 Contingencies	hectare hectare hectare hectare hectare hectare switch km km km km km 25.5% of Total	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$0 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218 \$0 \$430,165,499	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835 \$0 \$392,721,230	
2 Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban Dense Suburban Suburban Indeveloped Evironmental Impact Mitigation 1 Environmental Mitigation Signals and Communication 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System Electrification Items 1 Traction Power Supply 2 Traction Power Distribution Vehicle Costs 1 [Fleet Size Estimate Support Facility Costs 1 Facility Cost Breakdown Program Implementation Costs 1 Program Implementation Costs Contingencies	hectare hectare hectare hectare hectare hectare switch km km km km km 25.5% of Total	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.320 0.000 0.000 0.000 0.000 144.901 144.901 144.901	\$3,079,202 \$0 \$0 \$0 \$43,346,129 \$104,413,620 \$86,357,129 \$8,290,284 \$53,384,407 \$99,546,218 \$0	1,320 0,000 0,000 0,000 131,436 131,436 131,436	\$3,079,202 \$0 \$0 \$0 \$0 \$39,783,499 \$94,710,931 \$78,332,349 \$7,519,905 \$48,423,634 \$90,295,835 \$0	

	Cost Elements	UNIT	UNIT PRICE		QUANT	TITIFS		
Aligr	ment Cost	J	<u> </u>	BNSF: to Truxtun (A	mtrak) Station	BNSF: to Truxtun (Amtrak) Station (Alignment F24)		
Trac	k			Quantities	Item Cost	Quantities	Item Cost	
1 2	Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	143.941 130.755	\$110,655,448	130.476 117.990	\$99,852,657	
3		km	\$1,600,459	13.186	\$21,103,976	12.486	\$19,983,654	
4		km	\$1,600,459	0.000	\$0	0.000	\$0	
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000 0.000	\$0 \$0	
6		km	\$846,282	0.000	\$ 0	0.000	40	
7		km	\$423,141					
Eart	Four-track construction or reconstruction nwork and Related Items	km	\$1,692,564					
1	Site Preparation - Undeveloped	Hectares	\$10,294	337.748	\$3,476,809	303.959	\$3,128,976	
	Total Cut	m3	\$7.59	844,370.6	\$6,404,648	759,896.6	\$5,763,903	
	Total Fill Landscape/Erosion Control	m3 Hectares	\$7.59 \$6,881	844,370.6 3.520	\$6,404,648 \$24,220	759,896.6 2.880	\$5,763,903 \$19,817	
7	Security Fencing (Both Sides of R/W)	km	\$86,687	130.755	\$11,334,745	117.990	\$10,228,185	
	Special Drainage Facilities ctures/Tunnels/Walls	5% of	Earthwork Cost		\$1,382,254		\$1,245,239	
	Standard Structure	km	\$11,702,749	16.700	\$195,435,904	16.000	\$187,243,980	
2	High Structure	km	\$14,043,299	0.000	\$0	0.000	\$0	
3	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000 0.100	\$0 \$2,460,600	0.000 0.100	\$0 \$2,460,600	
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.100	\$2,460,600	0.100	\$2,460,600	
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		\$0	
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589		\$0		\$0	
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		\$0 \$0	
9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$0	
	Seismic Chamber (Drill & Blast/Mined) Crossovers	ea	\$80,782,844		\$0 \$0		\$0 \$0	
	Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379		\$0 \$0		\$0 \$0	
1:	3 Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0	
	Trench Long Mechanical & Electrical for Tunnels	km	\$33,464,567	0.000	**	2 222	\$0	
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	12.400	\$0 \$46,490,253	0.000 10.600	\$0 \$39,741,668	
1	7 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	\$0	
	s Single Track Cut and Cover Subway e Separations	km	\$25,628,987	0.000	\$0	0.000	\$0	
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	4	\$58,513,744	3	\$43,885,308	
2	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	13	\$71,841,874	13	\$71,841,874	
	Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea ea	\$931,886 \$15,278,589	47 0	\$43,798,621 \$0	47 0	\$43,798,621 \$0	
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	7	\$40,959,621	2	\$11,702,749	
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	7	\$6,902,455	5	\$4,930,325	
	Street Bridging HSR Trench Minor crossing closures	ea ea	\$151,702	0	\$0 \$151,702	0	\$0 \$151,702	
	ling Items	ca	\$131,702		\$131,702		\$131,702	
1	Intermediate Passenger Stations	ea	N/A	1		1		
	Bakersfield Airport Intermediate Station Bakersfield Golden State Intermediate Station	ea ea	\$32,430,000 \$32,211,500	0	\$0 \$0	0	\$0 \$0	
	Truxton (Union Avenue) Intermediate Station	ea	\$32,430,000	0	\$0	0	\$0	
	Truxton (Amtrak) Intermediate Station	ea	\$165,048,000	1	\$165,048,000	1	\$165,048,000	
	Terminal Passenger Stations Parking - Structure	ea space	N/A \$14,244	750	\$10,683,000	0 750	\$10,683,000	
4	Parking - At Grade	space	\$2,042	0	\$0	0	\$0	
	and Utility Relocation		44 000 500	4.400	A4.747.707	0.000	40.4/7.47/	
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	4.400 21.635	\$4,767,787 \$23,443,423	2.000 17.760	\$2,167,176 \$19,244,520	
3	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0	
4	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km	\$758,511	0.000	\$0 \$8,411,730	0.000	\$0 \$6,092,852	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	14.510 7.550	\$8,411,730	10.510 7.550	\$6,092,852	
7	Major Utility Relocations - Suburban	km	\$232,971	16.774	\$3,907,862	11.274	\$2,626,519	
	Major Utility Relocations - Undeveloped t-of-Way	km	\$11,919	105.107	\$1,252,819	101.142	\$1,205,559	
	Right-of-Way Required for Each Segment							
	Dense Urban	hectare	\$3,499,093	0.000	\$0	0.000	\$0	
\vdash	Urban Dense Suburban	hectare	\$2,332,729 \$1,166,264	31.570	\$73,645,180	25.490	\$59,462,189 \$14,449,022	
\vdash	Suburban Suburban	hectare hectare	\$1,166,364 \$408,227	12.388 46.471	\$14,448,922 \$18,970,721	12.388 29.751	\$14,448,922 \$12,145,158	
	Undeveloped	hectare	\$291,591	268.833	\$78,389,374	256.780	\$74,874,652	
				0.000	\$0	0.000	*0	
2			40.400.000		50	0.000 1.300	\$0	
2	Right-of-Way Required for Passenger Sta & Parking Facilities Dense Urban Urban	hectare hectare	\$3,499,093 \$2,332,729				\$3.032.547	
2	Dense Urban Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	1.300 0.000	\$3,032,547 \$0	0.000	\$3,032,547 \$0	
2	Dense Urban Urban Dense Suburban Suburban	hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.300 0.000 0.000	\$3,032,547 \$0 \$0	0.000 0.000	\$0 \$0	
	Dense Urban Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	1.300 0.000	\$3,032,547 \$0	0.000	\$0	
Eviro 1	Dense Urban Urban Dense Suburban Suburban Undeveloped ommental Impact Mitigation Environmental Mitigation	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227	1.300 0.000 0.000	\$3,032,547 \$0 \$0	0.000 0.000	\$0 \$0	
Eviro 1 Sign	Dense Urban Urban Dense Suburban Suburban Undeveloped nmental Impact Mitigation [Environmental Mitigation als and Communication	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.300 0.000 0.000 0.000	\$3,032,547 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$32,666,290	
Eviro 1 Sign	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped ommental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone)	hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591	1.300 0.000 0.000 0.000 1.000	\$3,032,547 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995	0.000 0.000 0.000 130.476	\$0 \$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214	
Eviro 1 Sign 1 2 3	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Ommental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System	hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	1.300 0.000 0.000 0.000 0.000	\$3,032,547 \$0 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858	0.000 0.000 0.000	\$0 \$0 \$0 \$32,666,290 \$94,019,168	
Eviro 1 Sign 1 2 3	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped ommental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification I tems	hectare hectare hectare hectare strength hectare hectare strength hectare strength hectare km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$599,973 \$57,213	1.300 0.000 0.000 0.000 143.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360	0.000 0.000 0.000 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981	
Eviron 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Dense Interview I	hectare hectare hectare hectare hectare hectare	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973	1.300 0.000 0.000 0.000 1.000	\$3,032,547 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995	0.000 0.000 0.000 130.476	\$0 \$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214	
Eviro 1 Sign 1 2 3 Elect	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (WiFiber Optic Backbone) Wayside Protection System Irfication Items Traction Power Supply Traction Power Distribution cle Costs	hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$409,227 \$291,591 of Line Cost \$720,586 \$599,973 \$57,213	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$48,069,951 \$89,636,320	
Eviron 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System trification Items Traction Power Supply Traction Power Distribution cle Costs Fleet Size Estimate	hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$409,227 \$291,591 of Line Cost \$720,586 \$599,973 \$57,213	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$30 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981	
Eviro 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wasylde Protection System Irraction Power Supply Traction Power Supply Traction Power Distribution Cie Costs Fleet Size Estimate Dort Facility Costs Facility Cost Breakdown	hectare hectare hectare hectare swm km km km	\$2,332,729 \$1,166,364 \$409,227 \$291,591 of Line Cost \$720,586 \$599,973 \$57,213	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$48,069,951 \$89,636,320	
Eviro 1 Sign 2 3 Elect 2 Vehi 1 Supp	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System riffication Items Traction Power Supply Traction Power Distribution ce Costs Fleet Size Estimate port Facility Costs Facility Costs Facility Cost Breakdown Facility Cost Breakdown Famil Implementation Costs	hectare hectare hectare hectare hectare hectare km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$48,069,951 \$89,636,320	
Eviror 1 Sign 2 3 3 Elect 1 2 2 Vehi 1 Supp 1 Supp 1 Prog	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Dense Suburban Undeveloped Dense Suburban Undeveloped Dense Suburban Impact Mitigation Indeveloped Dense Suburban Signaling (ATC) Communication Signaling (ATC) Communications (WFIber Optic Backbone) Wayside Protection System Understand System Dense Supply Traction Power Supply Traction Power Distribution Cle Costs Fleet Size Estimate Dort Facility Costs Facility Cost Breakdown Implementation Costs Program Implementation Costs	hectare hectare hectare hectare hectare hectare km km km km	\$2,332,729 \$1,166,364 \$409,227 \$291,591 of Line Cost \$720,586 \$599,973 \$57,213	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$48,069,951 \$89,636,320	
Evirc 1 Sign	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation Environmental Mitigation als and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System riffication Items Traction Power Supply Traction Power Distribution cte Costs Fleet Size Estimate port Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies Contingencies	hectare hectare hectare hectare hectare km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$0 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703 \$0 \$103,721,858 \$10	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$10 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$89,636,320 \$0 \$327,804,052	
Eviror 1 Sign 1 2 3 3 Elect 1 2 Vehi 1 Supp 1 Tota	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Jommental Impact Mitigation Environmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wasylde Protection System Irrification I tems Traction Power Supply Traction Power Distribution Cle Costs Fleet Size Estimate Dort Facility Costs Facility Cost Breakdown ram Implementation Costs Program Implementation Costs Ingencies	hectare hectare hectare hectare hectare km km km km	\$2,332,729 \$1,166,364 \$409,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	1.300 0.000 0.000 0.000 1.43.941 143.941 143.941	\$3,032,547 \$0 \$0 \$0 \$36,228,921 \$103,721,858 \$85,784,995 \$8,235,360 \$53,030,724 \$98,886,703 \$0	0.000 0.000 0.000 130.476 130.476 130.476	\$0 \$0 \$0 \$32,666,290 \$94,019,168 \$77,760,214 \$7,464,981 \$48,069,951 \$89,636,320 \$0 \$327,804,052	

COST ELEMENTS	UNIT	UNIT PRICE		QUANT	TTTFS	
COST ELEMENTS	OHII	ONTIFICE	Wheeler Ride		Union Avenu	e Corridor
REA 1: Bakersfield Connection			(Option		(Option	
rack			Quantities	Item Cost	Quantities	Item Cost
1 Double Track Section - Total	km	+0.45.202	46.000	+27, 400, 207	47.200	+24 222
Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	44.300 1.700	\$37,490,297 \$2,720,781	40.450 6.750	\$34,232, \$10,803,
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	¥10,003,
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	
6 Freight Double Track 7 Freight Single Track	km	\$846,282	0.000	\$0	0.000	
9 Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.000	\$0 \$0	0.000	
arthwork and Related Items	NII	\$1,032,304	0.000	30	0.000	
1 Site Preparation - Undeveloped	Hectares	\$10,294	130.658	\$1,345,004	125.916	\$1,296,
2 Total Cut	m3	\$7.59	320,200.0	\$2,428,754	289,150.0	\$2,193,
3 Total Fill	m3	\$7.59	320,200.0	\$2,428,754	289,150.0	\$2,193,
6 Landscape/Erosion Control 7 Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	11.340 44.286	\$78,028 \$3,839,022	9.400 40.444	\$64, \$3,505,
8 Special Drainage Facilities		Earthwork Cost	11.200	\$505,978	10.111	\$462,
tructures/Tunnels/Walls						
1 Standard Structure	km	\$11,702,749	1.700	\$19,894,673	0.000	+0.4.700
2 High Structure 3 Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000	\$0 \$0	6.750 0.000	\$94,792
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	
Waterway Crossing - Secondary (Irrigation/Canal Crossin		\$19,700,000	0.026	\$512,200	0.039	\$768
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0	0.000	
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	\$0	0.000	
7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0.000	\$0 \$0	0.000	
9 Double Track Mined (Soft Soil)	km km	\$/1,355,/33 \$82,012,758	0.000	\$0 \$0	0.000	
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0.000	\$0	0.000	
11 Crossovers	ea	\$80,782,844	0.000	\$0	0.000	
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0 \$0	0.000	
16 Retaining Walls	km	\$3,749,214	3.000	\$11,247,642	3.200	\$11,997
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	7,
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
ade Separations					-	
Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	0 7	\$0 \$38,684,086	2	\$29,256 \$27,631
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	21	\$19,569,597	15	\$13,978
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	3	\$45,835
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	, ,,,,,
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	1	\$986
10 Street Bridging HSR Trench 21 Minor crossing closures	ea	\$1,500,000	0	\$0	0	+010
uilding Items	ea	\$151,702	11	\$1,668,725	6	\$910
Intermediate Passenger Stations	ea		0	\$0	0	
2 Terminal Passenger Stations	ea		0	\$0	0	
3 Parking - Structure	space	\$14,244	0	\$0	0	
4 Parking - At Grade all and Utility Relocation	space	\$2,042	0	\$0	0	
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	
2 Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0	0.000	
3 Single Track Removal	km	\$54,000	0.000	\$0	0.000	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	
5 Major Utility Relocations - Urban 6 Major Utility Relocations - Dense Suburban	km	\$579,719	3.100	\$1,797,130	8.600	\$4,98
7 Major Utility Relocations - Dense Suburban	km km	\$406,345 \$232,971	0.000 10.300	\$0 \$2,399,605	3.000 3.500	\$1,219 \$815
8 Major Utility Relocations - Undeveloped	km	\$11,919	29.800	\$355,200	32.200	\$383
ght-of-Way		. ,		, ,		
1 Right-of-Way Required for Each Segment						
Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	400 ===
Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000 13.700	\$0 \$15,979,192	13.200 4.600	\$30,793 \$5,36
Suburban Suburban	Hectares	\$1,166,364	31.300	\$13,979,192	10.700	\$4,368
Undeveloped	Hectares	\$291,591	90.400	\$26,359,829	97.800	\$28,517
2 Right-of-Way Required for Passenger Station & Parking F						
Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	
Urban Donge Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	\$0 ¢0	0.000	
Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	
Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
vironmental Impact Mitigation						
Environmental Mitigation		3% of Line Cost		\$7,761,243		\$12,08
Inals and Communication 1 Signaling (ATC)	km	\$720,586	46.000	\$33,146,952	47.200	\$34,01
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	46.000	\$27,414,773	47.200	\$28,129
3 Wayside Protection System	km	\$57,213	46.000	\$2,631,818	47.200	\$2,700
ectrification Items						
1 Traction Power Supply	km	\$368,420	46.000	\$16,947,314	47.200	\$17,389
2 Traction Power Distribution hicle Costs	km	\$686,995	46.000	\$31,601,756	47.200	\$32,426
1 Fleet size estimate	vehicles				T	
pport Facility Costs	venices					
1 Facility cost breakdown	ea					
ogram Implementation Costs	1					
Program Implementation Costs	25.5% of Tota	I Cost and Procurement		\$82,004,398		\$123,44
Intingencies Contingencies	25% of To	tal Construction Cost		\$80,396,468		\$121,02
tal Construction	2370 01 10	an construction cost		\$258,708,090		\$402,969,
tal Construction and Right of Way				\$321,585,873 \$483,986,739		\$484,101, \$728,572,

		COST ELEMENTS	UNIT	IELD TO LOS ANGELI	QUANTIT	TFS
		COST ELEMENTS	ONTI	UNIT PRICE	SR-58 Cor	
ΑF	RE	EA 1: Bakersfield Connection			(Option 1	
Γr		ack		Q	uantities	Item Cost
	_	Double Track Section - Total Double Track Section - At-Grade	km km	*04C 202	14.200	412.017.2
	_	Double Track Section - Ac-Grade Double Track Section - On Structure	km	\$846,282 \$1,600,459	14.200 0.000	\$12,017,2
		4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	
	Ē	5 Double Track Section - In Trench	km	\$1,600,459	0.000	
		Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km	\$1,000,287	0.000	
	-	6 Freight Double Track 7 Freight Single Track	km km	\$846,282 \$423,141	0.000	
	_	9 Four-track construction or reconstruction	km	\$1,692,564	0.000	
Ea	_	rthwork and Related Items				
		Site Preparation - Undeveloped Total Cut	Hectares	\$10,294	29.011	\$298,6
		3 Total Fill	m3 m3	\$7.59 \$7.59	72,550.0 72,550.0	\$550,3 \$550,3
	6	6 Landscape/Erosion Control	Hectares	\$6,881	18.430	\$126,8
		7 Security Fencing (Both Sides of R/W)	km	\$86,687	14.185	\$1,229,6
-		8 Special Drainage Facilities ructures/Tunnels/Walls	5% of E	arthwork Cost		\$137,7
JL		1 Standard Structure	km	\$11,702,749	0.000	
	2	2 High Structure	km	\$14,043,299	0.000	
		3 Long Span Structure	km	\$32,020,021	0.000	
	-	4 Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.000 0.016	\$315,2
		5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$313,2
	_	6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	
	_	7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	
	-	B Double Track Drill & Blast Double Track Mined (Soft Soil)	km	\$71,355,733 \$82,012,758	0.000	
		10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0.000	
	1	11 Crossovers	ea	\$80,782,844	0.000	
		12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	
		13 Trench Short 14 Trench Long	km	\$42,322,835 \$32,464,567	0.000	
		15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	
	1 -	16 Retaining Walls	km	\$3,749,214	18.600	\$69,735,3
		17 Containment Walls	km	\$1,278,634	0.000	
٠.		18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	
9 ľ		ade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	
		2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	
	_	3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	4	\$3,727,5
		7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	
		Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374 \$986,065	0	
		10 Street Bridging HSR Trench	ea ea	\$1,500,000	0	
		21 Minor crossing closures	ea	\$151,702	0	
3ι		ilding Items				
		1 Intermediate Passenger Stations	ea		0	
		2 Terminal Passenger Stations 3 Parking - Structure	ea space	\$14,244	0	
		4 Parking - At Grade	space	\$2,042	0	
Ra		il and Utility Relocation				
		1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	
		Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	0.000	
		4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	
	-	5 Major Utility Relocations - Urban	km	\$579,719	0.000	
		6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	
		7 Major Utility Relocations - Suburban	km	\$232,971	0.000	*100.3
) i		8 Major Utility Relocations - Undeveloped	km	\$11,919	14.200	\$169,2
-1		1 Right-of-Way Required for Each Segment			T	
	ľ	Dense Urban	Hectares	\$3,499,093	0.000	
	Γ	Urban	Hectares	\$2,332,729	0.000	
	L	Dense Suburban	Hectares	\$1,166,364	0.000	
	H	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000 29.100	\$8,485,2
	1 2	2 Right-of-Way Required for Passenger Station & Parking Facilities	riculies	φ2.71,371	23.100	φυ, που, ε
	İ	Dense Urban	Hectares	\$3,499,093	0.000	-
	F	Urban	Hectares	\$2,332,729	0.000	
	H	Dense Suburban Suburban	Hectares	\$1,166,364 \$408,227	0.000	
	H	Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000	
n		vironmental Impact Mitigation		7221032	0.000	
	Er	Environmental Mitigation		3% of Line Cost		\$3,700,5
İ		nals and Communication	1	\$700 FOC	14 200	#10 222 2
		Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	14.200 14.200	\$10,232,3 \$8,462,8
		Wayside Protection System	km	\$57,213	14.200	\$812,4
		3 Wayside Frotection System				
ile	ec	ectrification Items				
:10	ec	ectrification Items 1 Traction Power Supply	km	\$368,420	14.200	
	ec	ctrification Items 1 Traction Power Supply 2 Traction Power Distribution	km km	\$368,420 \$686,995	14.200 14.200	
	ec	ectrification Items 1 Traction Power Supply 2 Traction Power Distribution hicle Costs	km			
/e	ec	ctrification Items 1 Traction Power Supply 2 Traction Power Distribution				
e Su	ec	Traction Ttems Traction Power Supply 2 Traction Power Distribution Traction Power Distribution Traction Power Distribution Traction Power Powe	km			
/e	ec	ctrification Items 1 Traction Power Supply 2 Traction Power Distribution hicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility Costs 1 Facility Costs 1 Pacility Cost breakdown	vehicles ea	\$686,995		\$9,755,3
/e Su	ec ehi	ctrification Items 1 Traction Power Supply 2 Traction Power Distribution hicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility Costs 1 Facility Cost breakdown ogram Implementation Costs Program Implementation Costs	vehicles ea			\$9,755,3
Su Or	ec in in in in	ctrification Items 1 Traction Power Supply 2 Traction Power Distribution hicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility Costs 1 Facility Costs 1 Pacility Cost breakdown	km vehicles ea 25.5% of Total (\$686,995		\$9,755,3 \$34,562,2
Je Su Co	ec 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	raction Items 1 Traction Power Supply 2 Traction Power Distribution hicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility cost breakdown ogram Implementation Costs Program Implementation Costs ntingencies	km vehicles ea 25.5% of Total (\$686,995	14.200	\$5,231,5 \$9,755,3 \$34,562,2 \$33,884,6 \$123,352,53 \$135,538,41

	COST ELEMENTS	UNIT	UNIT PRICE	QUAN		
AREA	2 - Rosamond to Palmdale			Antelope Valley Corridor		
	udes Palmdale Station)			(Option		
Track	Double Track Section - Total	km		Quantities 33.610	Item Cost	
2	Double Track Section - At-Grade	km	\$846,282	33.610	\$28,443,54	
3	Double Track Section - On Structure	km	\$1,600,459	0.000	\$	
4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$	
5	Double Track Section - In Trench	km	\$1,600,459	0.000		
6	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$	
7	Freight Single Track	km	\$423,141	0.000		
9	Four-track construction or reconstruction	km	\$1,692,564	0.000		
Earth	work and Related Items	<u>'</u>				
1	Site Preparation - Undeveloped	Hectares	\$10,294	102.144	\$1,051,47	
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	255,350.0 255,350.0	\$1,936,85 \$1,936,85	
	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$1,750,05	
7	, , , , , , , , , , , , , , , , , , , ,	km	\$86,687	33.600	\$2,912,68	
	Special Drainage Facilities tures/Tunnels/Walls	5% of E	Earthwork Cost		\$391,89	
	Standard Structure	km	\$11,702,749	0.000	\$	
	High Structure	km	\$14,043,299	0.000	\$	
	Long Span Structure	km	\$32,020,021	0.000	\$	
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.000	\$ \$	
5	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000		
6	Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	\$	
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$	
_	Double Track Drill & Blast	km	\$71,355,733	0.000	\$	
9	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0.000	\$ \$	
11	Crossovers	ea	\$80,782,844	0.000	\$	
12	Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$	
	Trench Short	km	\$42,322,835	0.000	\$	
	Trench Long Mechanical & Electrical for Tunnels	km	\$33,464,567	0.000	\$ \$	
	Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000		
	Containment Walls	km	\$1,278,634	0.000	\$	
	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$	
	Street Overcrossing HSR - (Urban)		#14 (00 40)			
	Street Overcrossing HSR - (Grban)	ea	\$14,628,436 \$5,526,298	0	\$49,736,68	
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	7	\$6,523,19	
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$	
	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	1	\$5,851,37	
	Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea	\$986,065 \$1,500,000	0	\$ \$	
	Minor crossing closures	ea	\$151,702	0	\$	
Build	ing Items		, . ,	-1	•	
1	Intermediate Passenger Stations			1		
2	Palmdale Station Terminal Passenger Stations	ea	\$32,430,000	1 0	\$32,430,00	
	Parking - Structure	space	\$14,244	0	\$	
	Parking - At Grade	space	\$2,042	483	\$986,28	
	and Utility Relocation					
	Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km	\$1,083,588 \$1,083,588	0.000	\$36.408.55	
	Single Track Removal	km km	\$1,083,588	0.000	\$36,408,55	
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$	
	Major Utility Relocations - Urban	km	\$579,719	0.000	\$	
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km	\$406,345 \$232,971	0.000	\$ 400.70	
	Major Utility Relocations - Suburban Maior Utility Relocations - Undeveloped	km km	\$232,971	10.700 23.000	\$2,492,79 \$274,14	
	:-of-Way	MIII	\$11,717	23.000	₽∠/4,14	
	Right-of-Way Required for Each Segment					
\bot	Dense Urban	Hectares	\$3,499,093	0.000	\$	
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	<u> </u>	
+	Dense Suburban Suburban	Hectares	\$1,166,364	32.600	\$13,308,21	
+	Undeveloped	Hectares	\$291,591	69.900	\$20,382,21	
2	Right-of-Way Required for Passenger Station & Parking Facilities		\$3,499,093	2.010	\$7,033,17	
2	Dense Urban	Hectares			\$	
2	Dense Urban Urban	Hectares	\$2,332,729	0.000	¢	
2	Dense Urban			0.000		
	Dense Urban Urban Dense Suburban Suburban Undeveloped	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	\$ \$ \$	
nvir	Dense Urban Urban Dense Suburban Suburban Undeveloped onmental Mitigation	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000	\$	
invir Env	Dense Urban Urban Dense Suburban Suburban Undeveloped onmental Mitigation	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0.000 0.000	\$	
igna	Dense Urban Urban Dense Suburban Suburban Undeveloped onmental Mitigation	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 0.000	\$7,590,64	
Envir Envisigna 1	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone)	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000	\$7,590,64 \$7,218,89 \$20,030,66	
Envir Envisigna 1 2 3	Dense Urban Urban Dense Suburban Suburban Undeveloped ommental Mitigation vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System	Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost	0.000 0.000 0.000 33.610	\$7,590,64 \$7,24,218,89 \$20,030,66	
Envir Envisigna 1 2 3	Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation Is and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification I tems	Hectares Hectares Hectares Hectares Hectares Km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94	
Envirus Envisigna 1 2 3 Clection 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Trification Items Traction Power Supply	Hectares Hectares Hectares Hectares Km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94	
Envir Envisigna 1 2 3 Electr	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped ommental Mitigation vironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution	Hectares Hectares Hectares Hectares Hectares Km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94	
Envir Envisigna 1 2 3 Electr 1 2 2/ehio	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System 'Iffication I tems Traction Power Supply Traction Power Distribution Le Costs Fleet size estimate	Hectares Hectares Hectares Hectares Km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,86 \$20,030,66 \$1,922,94	
Envir Envir Envir 1 2 3 Electr 1 2 /ehio	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Vification I tems Traction Power Supply Traction Power Supply Traction Power Supply Traction Fower Supply Traction	Hectares Hectares Hectares Hectares Hectares Hectares km km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94	
Environment of the state of the	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped ommental Mitigation vironmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System rification I tems I Traction Power Supply Traction Power Distribution Ite Costs Fleet size estimate ort Facility Costs Facility Costs Facility cost breakdown	Hectares Hectares Hectares Hectares Hectares Hectares Km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94	
Envir Envir Envir 2 3 Electi 1 2 /ehid 1 5 Supp	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification Items Traction Power Supply Traction Power Distribution Dec Costs Fleet size estimate ort Facility Costs Facility Co	Hectares Hectares Hectares Hectares Hectares Hectares km km km km km km em km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94 \$12,382,59 \$23,089,89	
Envir Envir Envir 1 2 3 3 Electi 1 2 2 4 6 1 5 6 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped ommental Mitigation vironmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System rification I tems I Traction Power Supply Traction Power Distribution Ite Costs Fleet size estimate ort Facility Costs Facility Costs Facility cost breakdown	Hectares Hectares Hectares Hectares Hectares Hectares km km km km km km em km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89	
Envir Envir	Dense Urban Urban Urban Dense Suburban Suburban Suburban Undeveloped onmental Mitigation vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System rification Items Irraction Power Supply Traction Power Distribution Dec Costs Fleet size estimate ort Facility Costs Facility Cost breakdown am Implementation Costs gram Implementation Costs Ingencies Ingencies	Hectares Hectares Hectares Hectares Hectares Hectares km km km km cm km km km km cm km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 0.000 33.610 33.610 33.610	\$7,590,64 \$24,218,89 \$20,030,66 \$1,922,94 \$12,382,59 \$23,089,89 \$76,840,57	
Envir Envisigna 2 3 3 Section 1 2 2 9 1 Programmer Total	Dense Urban Urban Urban Dense Suburban Suburban Undeveloped ommental Mitigation vironmental Mitigation sils and Communication Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System virication I tems Traction Power Supply Traction Power Supply Traction Power Distribution Ie Costs Fleet size estimate ort Facility Costs Facility cost breakdown am Implementation Costs gram Implementation Costs gram Implementation Costs gram Implementation Costs gram Implementation Costs	Hectares Hectares Hectares Hectares Hectares Hectares km km km km cm km km km km cm km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 0.000 33.610 33.610 33.610	\$1,922,94 \$12,382,59 \$20,030,66 \$1,922,94 \$12,382,59 \$23,089,89	

COST ELEMENTS	UNIT	UNIT PRICE		OUAN	TITIES	
333. 22223	0	0.1.1.1.1.02		207		
					Metrolink/UPRR	•
DEA O. C. S. S. S. S. S. S. W. H.			Metrolink/UPF		Burbank A	•
REA 3: San Fernando Valley rack Items			Sylmar Station Quantities	Item Cost	(Option Quantities	Item Cost
1 Double Track Section - Total	km		0.260	Item cost	10.750	item cost
Double Track Section - At-Grade	km	\$846,282	0.260	\$220,033	6.680	\$5,653,16
3 Double Track Section - On Structure	km	\$1,600,459	0.000	\$0		\$6,513,86
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0		<u> </u>
Single Track Sections - In Tunnel or Subway	km	\$1,000,439	0.000	\$0		
6 Freight Double Track	km	\$846,282	0.000	\$0		\$
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	S
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$
arthwork and Related Items 1 Site Preparation - Undeveloped	Hesters	\$10.00A	0.010	#O 404	24 100	\$351.12
2 Total Cut	Hectares m3	\$10,294 \$7.59	0.819 2,050.0	\$8,431 \$15,549		\$8,589,00
3 Total Fill	m3	\$7.59	2,050.0	\$15,549		\$202,90
6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.080	\$5!
7 Security Fencing (Both Sides of R/W)	km	\$86,687	0.259	\$22,452	6.680	\$579,00
8 Special Drainage Facilities	5% of Ea	rthwork Cost		\$3,099		\$486,13
1 Standard Structure	km	\$11,702,749	0.000	\$0	4.070	\$47,630,18
2 High Structure	km	\$14,043,299	0.000	\$0		\$47,030,10
3 Long Span Structure	km	\$32,020,021	0.000	\$0		
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0		5
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.000	\$0		\$315,20
5 Twin Single Track Drill & Blast (<6 Miles) 6 Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0.000	\$0 \$0		
7 Twin Single Track TBM (<6 Miles) 7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0.000	\$0 \$0		
8 Double Track Drill & Blast	km	\$71,355,733		\$0		
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		!
11 Crossovers	ea	\$80,782,844	0.000	\$0		
12 Cut & Cover Double Track Tunnel 13 Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0		
14 Trench Long	km	\$33,464,567	0.000	\$0		
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0		
16 Retaining Walls	km	\$3,749,214	0.000	\$0	6.700	\$25,119,7
17 Containment Walls	km	\$1,278,634	0.000	\$0		
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
rade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	4	\$58,513,7
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0		\$30,513,7
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0		
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0		
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0		
9 Street Undercrossing HSR - (Undeveloped) 10 Street Bridging HSR Trench	ea	\$986,065	0	\$0		¢/ 000 0
21 Minor crossing closures	ea ea	\$1,500,000 \$151,702	0	\$0 \$0		\$6,000,0
ilding Items	Cu	\$131,702	o _l	Ψ0	Ü	
Intermediate Passenger Stations	ea		0	\$0	0	
2 Terminal Passenger Stations	ea		0	\$0		
3 Parking - Structure	space	\$14,244	0	\$0		
4 Parking - At Grade il and Utility Relocation	space	\$2,042	0	\$0	0	
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	7.570	\$8,202,7
2 Single Track Relocation (Permanent)	km	\$1,083,588	0.260	\$281,733		\$7,238,3
3 Single Track Removal	km	\$54,000	0.000	\$0		
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0		
5 Major Utility Relocations - Urban	km	\$579,719	0.300	\$173,916		\$6,231,9
6 Major Utility Relocations - Dense Suburban 7 Major Utility Relocations - Suburban	km	\$406,345 \$232,971	0.000	\$0 \$0		
Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971	0.000	\$0		
ht-of-Way		V.1,717	5.550	Ψ0	5.550	
1 Right-of-Way Required for Each Segment						
Dense Urban	Hectares	\$3,499,093	0.000	\$0		47/7//
Urban	Hectares	\$2,332,729 \$1,166,364	0.800	\$1,866,183		\$76,746,7
Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0		
Undeveloped	Hectares	\$291,591	0.000	\$0		
2 Right-of-Way Required for Passenger Station & Parking Faci		.=,=			2.230	
Dense Urban	Hectares	\$3,499,093	0.000	\$0		
Urban	Hectares	\$2,332,729	0.000	\$0		
Dense Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0		
Suburban Undeveloped	Hectares	\$408,227 \$291,591	0.000	\$0		
vironmental Mitigation	. iociai co	VZ/1,571	0.000	\$0	0.000	
Environmental Mitigation	3% of	Line Cost		\$41,171		\$6,232,2
nals and Communication		_				
1 Signaling (ATC) 2 Communications (w/Fibor Ontic Rackbone)	km	\$720,586	0.260	\$187,352		\$7,746,2
Communications (w/Fiber Optic Backbone) Wayside Protection System	km km	\$595,973 \$57,213	0.260 0.260	\$154,953 \$14,875	10.750 10.750	\$6,406,7 \$615,0
ectrification Items	KM	\$57,213	0.260	\$14,875	10.750	\$615,0
1 Traction Power Supply	km	\$368,420	0.260	\$95,789	10.750	\$3,960,5
2 Traction Power Distribution	km	\$686,995	0.260	\$178,619		\$7,385,1
hicle Costs				•		
1 Fleet size estimate	vehicles					
pport Facility Costs 1 Facility cost breakdown						
gram Implementation Costs	ea					
Program Implementation Costs	25.5% of Total Co	ost and Procurement		\$836,325		\$74,133,
ntingencies	22.2.3 67 76.47 66			+000,020		1,100,1
Contingencies	25% of Total	Construction Cost		\$819,926		\$72,680,
tal Construction tal Construction				\$1,372,352 \$3,279,705		\$207,741,55 \$290,720,57

			SFIELD TO LOS A	INCLEED CONTINE			
	COST ELEMENTS	UNIT	UNIT PRICE	Metrolink/UP Airport Sta to E		Metrolink/UPRI Sta to Exist. LA (Under 1-5 & SF	US or LAUS S.
REA	3: San Fernando Valley			(Option	າ 3.03)	(Option	
	(Items			Quantities	Item Cost	Quantities	Item Cost
	Double Track Section - Total	km	+0.47.000	7.500	4/04744/	18.230	** ***
3		km km	\$846,282 \$1,600,459	7.500 0.000	\$6,347,116 \$0	7.200 11.030	\$6,093,23 \$17,653,06
4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0 \$0	0.000	\$17,053,00
5	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$
Ť	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$
6		km	\$846,282	0.000	\$0	0.000	\$
7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$
9		km	\$1,692,564	0.000	\$0	0.000	5
	work and Related Items						
	Site Preparation - Undeveloped	Hectares	\$10,294	24.688	\$254,140	54.416	\$560,16
	Total Cut Total Fill	m3 m3	\$7.59 \$7.59	1,760,150.0 18,150.0	\$13,350,940 \$137,670	48,200.0 90,000.0	\$365,60 \$682,66
	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$137,670	0.160	\$1,10
7		km	\$86,687	7.500	\$650,153	7.200	\$624,14
	Special Drainage Facilities		arthwork Cost		\$719,645		\$111,68
truc	tures/Tunnels/Walls						
	Standard Structure	km	\$11,702,749	0.000	\$0	3.220	\$37,682,8
	High Structure	km	\$14,043,299	0.000	\$0	7.540	\$105,886,47
	Long Span Structure	km	\$32,020,021	0.000	\$0	0.250	\$8,005,00
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$24,606,000	0.000	\$0	0.000	\$215.20
-	Waterway Crossing - Secondary (Irrigation/Canal Crossing) Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.000	\$0 \$0	0.016	\$315,20 \$
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0 \$0	0.000	
	Twin Single Track TBM v/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$0	0.000	
	Double Track Drill & Blast	km	\$71,355,733		\$0		
9	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		
	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		
	Crossovers	ea	\$80,782,844		\$0		!
	Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	!
	Trench Short	km	\$42,322,835	0.000	\$0	0.000	:
	Trench Long	km	\$33,464,567	0.000	\$0	0.000	
	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	******
	Retaining Walls Containment Walls	km	\$3,749,214	10.400	\$38,991,825	2.200	\$8,248,2
	Single Track Cut and Cover Subway	km	\$1,278,634	0.000	\$0 \$0	0.000	
	e Separations	km	\$25,628,987	0.000	\$0	0.000	
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	5	\$73,142,1
	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	\$70,1.12,1.
	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	
	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	1	\$15,278,589	5	\$76,392,94
8	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	
	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$
	Street Bridging HSR Trench	ea	\$1,500,000	3	\$4,500,000	0	•
	Minor crossing closures	ea	\$151,702	1	\$151,702	0	
	ing Items	T			+0		
	Intermediate Passenger Stations Terminal Passenger Stations	ea ea		0	\$0 \$0	0	9
	Parking - Structure	space	\$14,244	0	\$0	0	
	Parking - At Grade	space	\$2,042	0	\$0	0	
	and Utility Relocation		*=10.1=		*-		
	Single Track Relocation (Temporary)	km	\$1,083,588	5.200	\$5,634,657	0.000	
	Single Track Relocation (Permanent)	km	\$1,083,588	7.500	\$8,126,909	9.900	\$10,727,52
	Single Track Removal	km	\$54,000	0.000	\$0	0.000	
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	
	Major Utility Relocations - Urban	km	\$579,719	7.500	\$4,347,896	18.300	\$10,608,86
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	0.000	\$0 \$0	0.000	\$
	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0		3
	t-of-Way	KIII	\$11,719	0.000	\$0	0.000	•
	Right-of-Way Required for Each Segment	T T	T T			I	
Ť	Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	
	Urban	Hectares	\$2,332,729	23.000	\$53,652,761	54.000	\$125,967,3
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	!
	Suburban	Hectares	\$408,227	0.000	\$0	0.000	!
1	Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
2	Right-of-Way Required for Passenger Station & Parking Facilities						
	Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	
+	Urban Donce Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	\$0 \$0	0.000	
+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	
+	Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
nvir	conmental Mitigation		ΨΕ/1,371	0.300	\$0	0.000	`
	vironmental Mitigation	3% of	f Line Cost		\$3,501,304		\$12,041,55
igna	als and Communication						
	Signaling (ATC)	km	\$720,586	7.500	\$5,404,394	18.230	\$13,136,28
	Communications (w/Fiber Optic Backbone)	km	\$595,973	7.500	\$4,469,800	18.230	\$10,864,59
	Wayside Protection System	km	\$57,213	7.500	\$429,101	18.230	\$1,043,00
	rification Items		2		40.5		1,
	Traction Power Distribution	km	\$368,420	7.500	\$2,763,149	18.230	\$6,716,2
	Traction Power Distribution	km	\$686,995	7.500	\$5,152,460	18.230	\$12,523,9
	Fleet size estimate	vehicles	T		ı	-	
	ort Facility Costs	vernues					
	Facility cost breakdown	ea				1	
	ram Implementation Costs		1				
	gram Implementation Costs	25.5% of Total C	Cost and Procurement		\$44,335,374	I	\$137,545,4
	ingencies				,===,37 1		
Cor	ntingencies	25% of Total	Construction Cost		\$43,466,053		\$134,848,48
otal	Construction				\$116,710,146		\$401,385,04
	Construction and Right of Way				\$173,864,212		\$539,393,94
ran	d Total				\$261,665,639		\$811,787,89
_							

QUANTITY WORKSHEET - SUMMARY OF ALIGNMENT OPTIONS CAPITAL COST ESTIMATES CA HSRA PROGRAM EIR/EIS

BAKERSFIELD TO LOS ANGELES CORRIDOR

COST ELEMENTS	UNIT	UNIT PRICE	NGELES CORRID		TITIES	
COST ELEIWENTS	UNIT	UNITERICE	Metrolink/UPRI		Metrolink/UPR	R: DT Burbar
			Sta to LAU		Sta to Exist. LA	
			(Under I-5 & SR		(Over I-5 & SR	
EA 3: San Fernando Valley			(Option		(Option	
ack Items			Quantities	Item Cost	Quantities	Item Cost
Double Track Section - Total	km		16.140		18.270	
Double Track Section - At-Grade	km	\$846,282	7.200	\$6,093,231	10.420	\$8,818
3 Double Track Section - On Structure	km	\$1,600,459	8.940	\$14,308,106	7.850	\$12,563
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	
5 Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459	0.000	\$0	0.000	
6 Freight Double Track	km	\$1,000,287	0.000	\$0	0.000	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	
thwork and Related Items			<u>'</u>			
Site Preparation - Undeveloped	Hectares	\$10,294	48.071	\$494,847	51.778	\$53
2 Total Cut	m3	\$7.59	48,200.0	\$365,603	61,850.0	\$469
3 Total Fill	m3	\$7.59	90,000.0	\$682,660	141,650.0	\$1,07
6 Landscape/Erosion Control 7 Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.160 7.200	\$1,101 \$624,147	0.240 10.410	\$902
8 Special Drainage Facilities		rthwork Cost	7.200	\$108,418	10.410	\$149
uctures/Tunnels/Walls	370 01 Edi	tilwork cost		\$100,410		\$14
1 Standard Structure	km	\$11,702,749	2.410	\$28,203,624	3.180	\$37,21
2 High Structure	km	\$14,043,299	6.510	\$91,421,873	4.390	\$61,650
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.280	\$8,965
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000		\$315,200	0.016	\$315
5 Twin Single Track Drill & Blast (<6 Miles) 6 Twin Single Track TBM (<6 Miles)	km	\$63,942,150 \$47,261,589		\$0	0.000	
6 I win Single Track TBM (<6 Miles) 7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0.000	\$0 \$0	0.000	
8 Double Track Drill & Blast	km	\$71,355,733		\$0		
9 Double Track Mined (Soft Soil)	km	\$82,012,758		\$0		
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		
11 Crossovers	ea	\$80,782,844		\$0		
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	
14 Trench Long	km	\$33,464,567	0.000	\$0	0.000	
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	615.74
16 Retaining Walls 17 Containment Walls	km km	\$3,749,214 \$1,278,634	2.200 0.000	\$8,248,271 \$0	4.200 0.000	\$15,74
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
nde Separations	KIII	Ψ23,020,707	0.000	40	0.000	
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	5	\$73,142,180	5	\$73,142
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	5	\$76,392,943	5	\$76,392
8 Street Undercrossing HSR - (Suburban) 9 Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374	0	\$0	0	
10 Street Bridging HSR Trench	ea ea	\$986,065 \$1,500,000	0	\$0 \$0	0	
21 Minor crossing closures	ea	\$151,702	0	\$0	0	
Iding Items						
1 Intermediate Passenger Stations	ea		0	\$0	0	
2 Terminal Passenger Stations	ea		0	\$0	0	
3 Parking - Structure 4 Parking - At Grade	space	\$14,244	0	\$0	0	
I and Utility Relocation	space	\$2,042	0	\$0	0	
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	
2 Single Track Relocation (Permanent)	km	\$1,083,588	9.900	\$10,727,520	12.110	\$13,12
3 Single Track Removal	km	\$54,000		\$0	0.000	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	
5 Major Utility Relocations - Urban	km	\$579,719	16.200	\$9,391,456	18.300	\$10,608
6 Major Utility Relocations - Dense Suburban	km	\$406,345		\$0	0.000	
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km	\$232,971 \$11,010	0.000	\$0 \$0	0.000	
ht-of-Way	km	\$11,919	0.000	\$0	0.000	
1 Right-of-Way Required for Each Segment						
Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	
Urban	Hectares	\$2,332,729	47.600	\$111,037,888	52.800	\$123,168
Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	
Suburban	Hectares	\$408,227	0.000	\$0	0.000	
Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities	Hack	#2 400 222	0.000	4.0	0.000	
Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729		\$0 \$0	0.000	
Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364		\$0 \$0	0.000	
Suburban	Hectares	\$408,227	0.000	\$0	0.000	
Undeveloped	Hectares	\$291,591		\$0	0.000	
rironmental Mitigation						
Environmental Mitigation	3% of	Line Cost		\$10,791,848		\$10,98
nals and Communication	1	#200 FT :		#44 / CC C	40.05	#40 4 · ·
1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	16.140 16.140	\$11,630,257	18.270 18.270	\$13,16! \$10,888
3 Wayside Protection System	km km	\$595,973 \$57,213		\$9,619,009 \$923,425	18.270 18.270	\$10,888
ctrification Items	NIII	\$37,213	10.140	\$7Z3,4Z3	10.2/0	\$1,04
1 Traction Power Supply	km	\$368,420	16.140	\$5,946,297	18.270	\$6,73
	km	\$686,995		\$11,088,094	18.270	\$12,55
2 Traction Power Distribution						
nicle Costs						
nicle Costs Fleet size estimate	vehicles					
nicle Costs 1 Fleet size estimate poort Facility Costs						
nicle Costs 1 Fleet size estimate poport Facility Costs 1 Facility cost breakdown	vehicles					
nicle Costs 1 Fleet size estimate poport Facility Costs 1 Facility cost breakdown ogram Implementation Costs	ea	net and Progues and		¢122 707 200		¢107 FF
nicle Costs 1 Fleet size estimate port Facility Costs	ea	ost and Procurement		\$122,797,289		\$127,55
nicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility cost breakdown gram Implementation Costs Program Implementation Costs ttingencies	ea 25.5% of Total Co					\$127,551 \$125,050
nicle Costs 1 Fleet size estimate pport Facility Costs 1 Facility cost breakdown gram Implementation Costs Program Implementation Costs	ea 25.5% of Total Co	ost and Procurement Construction Cost		\$122,797,289 \$120,389,499 \$359,728,261		\$127,551 \$125,050 \$366,051, 3

	OOCT ELEMENTO		SFIELD TO LOS A			TITIES	
	COST ELEMENTS	UNIT	UNIT PRICE		QUAN	TITIES	
				Metrolink/UPR			
				Sta to LAU	-	I-5: DT Burban	
				(Over I-5 & SR	-110 Variant)	LAUS or LAUS	S. (Aerial at
AREA 3:	San Fernando Valley			(Option	3.04D)	Silver Lake) (C	ption 3.04E)
Track Ite			•	Quantities	Item Cost	Quantities	Item Cost
1 Dou	uble Track Section - Total	km		16.180		17.340	
	Double Track Section - At-Grade	km	\$846,282	9.370	\$7,929,663	1.100	\$930,910
0	Double Track Section - On Structure	km	\$1,600,459	6.810	\$10,899,127	13.840	\$22,150,35
	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	2.400	\$3,841,10
	Double Track Section - In Trench	km	\$1,600,459	0.000	\$0	0.000	\$
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$(
	reight Double Track	km	\$846,282	0.000	\$0	0.000	\$(
	reight Single Track	km	\$423,141	0.000	\$0	0.000	\$
	our-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$
	ork and Related Items						
	e Preparation - Undeveloped	Hectares	\$10,294	45.428	\$467,640	53.288	\$548,55
	al Cut	m3	\$7.59	53,900.0	\$408,838	0.0	\$1
3 Tota		m3	\$7.59	133,700.0	\$1,014,130	41,800.0	\$317,05
	ndscape/Erosion Control	Hectares	\$6,881	0.240	\$1,651	0.100	\$68
	curity Fencing (Both Sides of R/W)	km	\$86,687	9.361	\$811,477	1.100	\$95,356
	ecial Drainage Facilities	5% of E	arthwork Cost		\$135,187		\$48,08
	res/Tunnels/Walls		*** 700 710	0.440	**** **** ****	5.000	*/******
	Indard Structure	km	\$11,702,749		\$28,203,624	5.980	\$69,982,43
		km	\$14,043,299	4.390	\$61,650,080	7.190	\$100,971,31
	ng Span Structure Iterway Crossing - Primary	km	\$32,020,021	0.000	\$0 \$0	0.650 0.000	\$20,813,01 \$
	sterway Crossing - Primary sterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.000	\$0 \$315,200	0.000	\$1
	in Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000	0.016	\$315,200	0.000	\$
	in Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0 \$0	2.400	\$113,427,81
	in Single Track TBM (<6 Miles) in Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589	0.000	\$0 \$0	2.400	\$113,427,81
	uble Track Drill & Blast	km	\$71,355,733		\$0		
	uble Track Mined (Soft Soil)	km	\$82,012,758		\$0		\$
	smic Chamber (Drill & Blast/Mined)	ea	\$82,012,758		\$0 \$0		\$
11 Cros	,	ea	\$80,782,844		\$0		\$
	t & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	\$
	ench Short	km	\$42,322,835	0.000	\$0	0.000	\$
	ench Long	km	\$33,464,567	0.000	\$0	0.000	\$
	chanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	2.400	\$3,949.73
	taining Walls	km	\$3,749,214	4.200	\$15,746,699	2.200	\$8,248,27
	ntainment Walls	km	\$1,278,634	0.000	\$0	0.000	\$1
	gle Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	\$1
	eparations		120/020/101		*-		-
	eet Overcrossing HSR - (Urban)	ea	\$14,628,436	5	\$73,142,180	0	\$1
	eet Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	\$1
3 Stre	eet Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	\$(
7 Stre	eet Undercrossing HSR - (Urban)	ea	\$15,278,589	5	\$76,392,943	0	\$(
8 Stre	eet Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$(
9 Stre	eet Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	\$(
10 Stre	eet Bridging HSR Trench	ea	\$1,500,000	0	\$0	0	\$0
	nor crossing closures	ea	\$151,702	0	\$0	0	\$(
Building							
	ermediate Passenger Stations	ea		0	\$0	0	\$(
	minal Passenger Stations	ea		0	\$0	0	\$(
	king - Structure	space	\$14,244	0	\$0	0	\$(
	king - At Grade	space	\$2,042	0	\$0	0	\$
	Utility Relocation					1	
	gle Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	\$1
	gle Track Relocation (Permanent) gle Track Removal	km	\$1,083,588	11.060 0.000	\$11,984,482	1.560 0.000	\$1,690,39
	jor Utility Relocations - Dense Urban	km	\$54,000	0.000	\$0	0.000	\$1
	jor Utility Relocations - Dense Orban	km	\$758,511		\$0 \$9,391,456	17.400	\$10,007,11
	jor Utility Relocations - Orban	km km	\$579,719	16.200 0.000	\$9,391,450	0.000	\$10,087,11° \$
	jor Utility Relocations - Suburban	km	\$406,345 \$232,971	0.000	\$0	0.000	\$1
	jor Utility Relocations - Subdibari	km	\$232,971		\$0	0.000	\$1
Right-of-		KIII	\$11,717	0.000	\$0	0.000	31
	ht-of-Way Required for Each Segment	1			1		
	Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	\$1
	Jrban	Hectares	\$2,332,729	46.400	\$108,238,614	51.300	\$119,668,98
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	\$117,000,70
	Suburban	Hectares	\$408,227	0.000	\$0	0.000	\$
	Jndeveloped	Hectares	\$291,591	0.000	\$0	0.000	\$
	ht-of-Way Required for Passenger Station & Parking Facilities						<u> </u>
	Dense Urban	Hectares	\$3,499,093	0.000	\$0	0.000	\$
U	Jrban	Hectares	\$2,332,729	0.000	\$0	0.000	\$1
	Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	\$
	Suburban	Hectares	\$408,227	0.000	\$0	0.000	\$(
	Jndeveloped	Hectares	\$291,591	0.000	\$0	0.000	\$
	mental Mitigation						
	mental Mitigation	3% 0	of Line Cost		\$10,133,959		\$11,976,72
Environr	and Communication						
Environr Signals a		km	\$720,586	16.180	\$11,659,080	17.340	\$12,494,96
Environr Signals a	naling (ATC)		\$595,973	16.180	\$9,642,848	17.340	\$10,334,17
Environr Signals a 1 Sign 2 Com	mmunications (w/Fiber Optic Backbone)	km			\$925,713	17.340	\$992,08
Environr Signals a 1 Sign 2 Com 3 Way	mmunications (w/Fiber Optic Backbone) lyside Protection System	km km	\$57,213	16.180	\$723,713	17.010	\$7,72,00
Environr Signals a 1 Sign 2 Com 3 Way Electrific	mmunications (w/Fiber Optic Backbone) yside Protection System cation Items	km					
Environr Signals a 1 Sign 2 Com 3 Way Electrific	mmunications (w/Fiber Optic Backbone) yside Protection System cation Items ction Power Supply	km	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac	mmunications (w/Fiber Optic Backbone) yside Protection System cation Items ction Power Supply ction Power Distribution	km					\$6,388,40
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac Vehicle C	mmunications (w/Fiber Optic Backbone) yside Protection System cation Items cition Power Supply cition Power Distribution Costs	km km km	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40
Environr Signals a 1 Sign 2 Corr 3 Way Electrific 1 Trac 2 Trac Vehicle C	mmunications (w/Fiber Optic Backbone) yside Protection System cation I tems uction Power Supply uction Power Distribution Costs et size estimate	km	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40
Environr Signals a 1 Sign 2 Corr 3 Way Electrific 1 Trac 2 Trac Vehicle C Support	mmunications (w/Fiber Optic Backbone) yside Protection System cation Items ction Power Supply ction Power Distribution Costs et size estimate Facility Costs	km km km	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40
Environr Signals a 1 Sign 2 Corr 3 Way Electrific 1 Trac 2 Trac Vehicle C 1 Flee Support 1 Faci	mmunications (w/Fiber Optic Backbone) yside Protection System cation I tems ction Power Supply iction Power Distribution Costs et size estimate Facility Costs cility cost breakdown	km km km	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac Vehicle C 1 Flee Support 1 Faci Program	mmunications (w/Fiber Optic Backbone) yside Protection System cation I tems iction Power Supply ction Power Distribution Costs et size estimate Facility Costs jilly cost breakdown I Implementation Costs	km km km vehicles	\$368,420 \$686,995	16.180	\$5,961,033 \$11,115,574	17.340	\$6,388,40 \$11,912,48
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac Vehicle C 1 Flee Support 1 Faci Program	mmunications (w/Fiber Optic Backbone) yside Protection System cation I tems ction Power Supply ction Power Distribution Costs et size estimate Facility Costs lillty cost breakdown Implementation Costs In Implementation Costs	km km km vehicles	\$368,420	16.180	\$5,961,033	17.340	\$6,388,40 \$11,912,48 \$135,371,85
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac 1 Flee Support 1 Faci Program Program Continge	mmunications (w/Fiber Optic Backbone) yyside Protection System cation Items ction Power Supply ction Power Distribution Costs et size estimate Facility Costs Jillity cost breakdown I Implementation Costs In Implementation Costs In Implementation Costs Encices	km km km vehicles ea 25.5% of Total	\$368,420 \$686,995	16.180	\$5,961,033 \$11,115,574 \$116,323,656	17.340	\$6,388,40 \$11,912,48 \$135,371,85
Environr Signals a 1 Sign 2 Com 3 Way Electrific 1 Trac 2 Trac Venicle C 1 Face Support 1 Faci Program Continge Continge Continge	mmunications (w/Fiber Optic Backbone) yyside Protection System cation I tems iction Power Supply cition Power Distribution Costs et size estimate Facility Costs jilly cost breakdown I Implementation Costs in Implementation Costs encies encies	km km km vehicles ea 25.5% of Total	\$368,420 \$686,995	16.180	\$5,961,033 \$11,115,574 \$11,6323,656 \$114,042,800	17.340	\$6,388,40 \$11,912,48 \$135,371,85 \$132,717,50
Environr Signals a 1 Signals a 2 Corn 3 Way Electrific 1 Trac 2 Trac 7 Trac 2 Trac 7 mmunications (w/Fiber Optic Backbone) yyside Protection System cation Items ction Power Supply ction Power Distribution Costs et size estimate Facility Costs Jillity cost breakdown I Implementation Costs In Implementation Costs In Implementation Costs Encices	km km km vehicles ea 25.5% of Total	\$368,420 \$686,995	16.180	\$5,961,033 \$11,115,574 \$116,323,656	17.340	\$6,388,40 \$11,912,48	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTI	TIFS
_	0001 2222.110	0	0.11.1.11.02	I-5: Beg DT Bui	-
				Beg Exist LAUS o	r To Beg LAU
				South (Cut & Co	ver at Silver
	A 3: San Fernando Valley			Lake) (Opt	
	Double Track Section - Total	km		Quantities 17.340	Item Cost
2		km	\$846,282	1.100	\$930,91
3	Double Track Section - On Structure	km	\$1,600,459	10.740	\$17,188,93
4		km	\$1,600,459	5.500	\$8,802,52
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	<u> </u>
6		km	\$846,282	0.000	
7	-	km	\$423,141	0.000	\$
9		km	\$1,692,564	0.000	\$
	nwork and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	48.576	\$500,04
2		m3	\$7.59	0.0	\$300,04
3		m3	\$7.59	41,800.0	\$317,05
6		Hectares	\$6,881	0.060	\$41
7	Special Drainage Facilities	km 5% of Fa	\$86,687 arthwork Cost	1.100	\$95,35 \$45,64
	ctures/Tunnels/Walls	0,00.20	a a more oost		\$10,0
	Standard Structure	km	\$11,702,749	5.980	\$69,982,43
	High Structure	km	\$14,043,299	4.090	\$57,437,09
3	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021	0.650	\$20,813,0
4	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$24,606,000 \$19,700,000	0.000	
5	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	km	\$63,942,150	0.000	\$
6	Twin Single Track TBM (<6 Miles)	km	\$47,261,589	2.400	\$113,427,8
7		km	\$67,185,592		
8		km	\$71,355,733		
10	, , ,	km ea	\$82,012,758 \$80,782,844		:
	Crossovers	ea	\$80,782,844		
12	Cut & Cover Double Track Tunnel	km	\$41,006,379	3.100	\$127,119,7
	Trench Short	km	\$42,322,835	0.000	
	Trench Long	km	\$33,464,567	0.000	10.051.1
	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	5.500 2.200	\$9,051,4 \$8,248,2
17		km	\$1,278,634	0.000	\$0,240,2
	Single Track Cut and Cover Subway	km	\$25,628,987	0.000	
	e Separations			,	
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	
3	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea	\$5,526,298	0	
7		ea ea	\$931,886 \$15,278,589	0	
8		ea	\$5,851,374	0	
9	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	
	Street Bridging HSR Trench	ea	\$1,500,000	0	
	Minor crossing closures ling Items	ea	\$151,702	0	
	Intermediate Passenger Stations	ea	1	0	
2	-	ea		0	
	Parking - Structure	space	\$14,244	0	
	Parking - At Grade and Utility Relocation	space	\$2,042	0	
	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	
2		km	\$1,083,588	1.560	\$1,690,3
3		km	\$54,000	0.000	
4	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	
	Major Utility Relocations - Urban	km	\$579,719	17.400	\$10,087,1
	Major Utility Relocations - Dense Suburban Major Utility Relocations - Suburban	km km	\$406,345 \$232,971	0.000	
	Major Utility Relocations - Subdivaria	km	\$11,919	0.000	
gh	t-of-Way		********		
1	Right-of-Way Required for Each Segment				
┡	Dense Urban	Hectares	\$3,499,093	0.000	¢110 / / 0 °
	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	51.300 0.000	\$119,668,9
	Suburban Suburban	Hectares	\$408,227	0.000	
	Undeveloped	Hectares	\$291,591	0.000	
2	Right-of-Way Required for Passenger Station & Parking Facilities	<u> </u>			
₽	Dense Urban	Hectares	\$3,499,093	0.000	
+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	
۲	Suburban Suburban	Hectares	\$408,227	0.000	
I	Undeveloped	Hectares	\$291,591	0.000	
	ronmental Mitigation				
	vironmental Mitigation als and Communication	3% of	f Line Cost		\$14,635,8
	Signaling (ATC)	km	\$720,586	17.340	\$12,494,9
2	Communications (w/Fiber Optic Backbone)	km	\$595,973	17.340	\$10,334,1
	Wayside Protection System	km	\$57,213	17.340	\$992,0
	rification Items				
	Traction Power Supply Traction Power Distribution	km	\$368,420	17.340	\$6,388,4
1	cle Costs	km	\$686,995	17.340	\$11,912,4
1 2			T		
1 2 ehi o	Fleet size estimate	vehicles			
1 2 hio 1	Fleet size estimate ort Facility Costs	vehicles			
1 2 2 1 1 1 1	Fleet size estimate ort Facility Costs Facility cost breakdown	vehicles			
1 2 2 1 1 1 7 Og	Fleet size estimate	ea	Seet and Dress		#1F0 / F0 1
1 2 2 1 1 1 7 Og	Fleet size estimate oort Facility Costs Facility cost breakdown ram Implementation Costs gram Implementation Sosts	ea	Cost and Procurement		\$158,652,1
2 ehice 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Fleet size estimate	ea 25.5% of Total C	Cost and Procurement Construction Cost		\$158,652,1 \$155,541,2

	UNIT	UNIT PRICE		QUANT	TITIES	
EA 3: San FernandoValley			Sylmar (Option	3.05)	Burbank Air (Optior	າ 3.06)
ick			Quantities	Item Cost	Quantities	Item Cost
Double Track Section - Total Double Track Section - At-Grade	km km	\$846,282	0.000	\$0	0.000	
3 Double Track Section - On Structure	km	\$1,600,459	0.000	\$0	0.000	
4 Double Track Section - In Tunnel or Subway 5 Double Track Section - In Trench	km km	\$1,600,459 \$1,600,459	0.000	\$0 \$0	0.000	
Single Track Sections - In Trench Single Track Sections - In Tunnel or Subway	km	\$1,000,459	0.000	\$0 \$0	0.000	
6 Freight Double Track	km	\$846,282	0.000	\$0	0.000	
7 Freight Single Track 9 Four-track construction or reconstruction	km	\$423,141	0.000	\$0	0.000	
9 Four-track construction or reconstruction Thwork and Related Items	km	\$1,692,564	0.000	\$0	0.000	
1 Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	0.000	
2 Total Cut	m3	\$7.59	0.0	\$0	0.0	
3 Total Fill	m3	\$7.59	0.0	\$0	0.0	
6 Landscape/Erosion Control 7 Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.000	\$0 \$0	0.000	
8 Special Drainage Facilities		rthwork Cost		\$0		
uctures/Tunnels/Walls						
1 Standard Structure 2 High Structure	km km	\$11,702,749 \$14,043,299	0.000	\$0 \$0	0.000	
3 Long Span Structure	km	\$32,020,021	0.000	\$0	0.000	
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000 \$63,942,150	0.000	\$0 \$0	0.000	
5 Twin Single Track Drill & Blast (<6 Miles) 6 Twin Single Track TBM (<6 Miles)	km km	\$47,261,589	0.000	\$0	0.000	
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0	3.333	
8 Double Track Drill & Blast	km	\$71,355,733		\$0		-
9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		
10 Seismic Chamber (Drill & Blast/Mined) 11 Crossovers	ea ea	\$80,782,844 \$80,782,844	0.000	\$0 \$0	0.000	
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0 \$0	0.000	
16 Retaining Walls	km	\$3,749,214	0.000	\$0	0.000	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	
2 Street Overcrossing HSR - (Suburban)		\$5,526,298	0	\$0	0	
3 Street Overcrossing HSR - (Undeveloped)	ea ea	\$931,886	0	\$0	0	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	
10 Street Bridging HSR Trench	ea	\$1,500,000	0	\$0	0	
21 Minor crossing closures	ea	\$151,702	0	\$0	0	
ilding Items						
1 Intermediate Passenger Stations		\$171,844,500	1	\$171,844,500	1 0	
Sylmar Station (Aerial) Burbank Airport Station (In Trench)		\$366,068,000	0	\$171,844,500	1	\$366,068
Burbank Downtown Station (Metrolink/UPRR Variant) (Aerial)		\$171,844,500	0	\$0	0	
Burbank Downtown Station (I-5 Variant) (Aerial)		\$171,844,500	0	\$0	0	
2 Terminal Passenger Stations 3 Parking - Structure	space	\$14,244	1,404	\$19,998,576	0 1,073	\$15,283
4 Parking - At Grade	space	\$2,042	0	\$0	0	\$13,20
il and Utility Relocation						
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	
2 Single Track Relocation (Permanent) 3 Single Track Removal	km km	\$1,083,588 \$54,000	0.000	\$0 \$0	0.000	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	
6 Major Utility Relocations - Dense Suburban	km	\$406,345 \$232,971	0.000	\$0	0.000	
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$11,919	0.000	\$0 \$0	0.000	
ht-of-Way	NII	ψ11,717 ₁	0.000	40	0.000	
1 Right-of-Way Required for Each Segment						
Dense Urban	Hectares	\$3,499,093 \$2,332,729	0.000	\$0 \$0	0.000	
Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	\$0 \$0	0.000	
Suburban Suburban	Hectares	\$408,227	0.000	\$0	0.000	
		\$291,591	0.000	\$0	0.000	
Undeveloped	Hectares	\$271,371				\$979
2 Right-of-Way Required for Passenger Station & Parking Facilities				\$070 746	0.200	
	Hectares	\$3,499,093	0.280	\$979,746 \$0	0.280 0.000	371
Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban	Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364	0.280 0.000 0.000	\$0 \$0	0.000 0.000	\$77°
Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban	Hectares Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227	0.280 0.000 0.000 0.000	\$0 \$0 \$0	0.000 0.000 0.000	371
Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped	Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364	0.280 0.000 0.000	\$0 \$0	0.000 0.000	371
Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban	Hectares Hectares Hectares Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.280 0.000 0.000 0.000	\$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation nals and Communication	Hectares Hectares Hectares Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.280 0.000 0.000 0.000 0.000	\$0 \$0 \$0	0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped //ronmental Mitigation Environmental Mitigation mals and Communication 1 Signaling (ATC)	Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.280 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped //ronmental Mitigation Environmental Mitigation als and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	Hectares Hectares Hectares Hectares Hectares Hectares Ketares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.280 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeweloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System	Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.280 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Suburban Suburban Undeveloped Vironmental Mitigation Servironmental Mitigation Servironmental Mitigation 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System Ctrification I tems	Hectares Hectares Hectares Hectares Hectares Hectares Mectares Hectares Mectares Mectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost [7] \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeweloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System	Hectares Hectares Hectares Hectares Hectares Hectares Ketares Hectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost	0.280 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Jundeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution nicle Costs	Hectares Hectares Hectares Hectares Hectares Hectares Mectares Hectares Mectares Mectares Mectares Mectares Mectares Mectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$\frac{1}{2}\$ \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation nals and Communication 1 Signaling (ATC) 2 Communication (WFiber Optic Backbone) 3 Wayside Protection System Ctrification I tems 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Supply 1 Fleet size estimate	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Km km km	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$\frac{1}{2}\$ \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Invironmental Mitigation Invitor Invit	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Ketares K	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$\frac{1}{2}\$ \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) Communications (w/Fiber Optic Backbone) 3 Wayside Protection System ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution nicle Costs 1 Fleet size estimate Doport Facility Costs 1 Facility Cost breakdown	Hectares Hectares Hectares Hectares Hectares Hectares Mectares Hectares Mectares Mectares Mectares Mectares Mectares Mectares	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$\frac{1}{2}\$ \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped //rionmental Mitigation Environmental Mitigation Sand Communication 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System ctrification I tems 1 Traction Power Distribution incle Costs 1 Fleet size estimate poport Facility Costs 1 Facility cost breakdown gram Implementation Costs	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Km km km km km km km	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0, \$0, \$0, \$0, \$5,755,292 N \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0,	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	114405
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) Communications (w/Fiber Optic Backbone) 3 Wayside Protection System ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution nicle Costs 1 Fleet size estimate Doport Facility Costs 1 Facility Cost breakdown	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Km km km km km km km	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$\frac{1}{2}\$ \$720,586 \$595,973 \$57,213	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$5,755,292 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	114405
2. Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation nals and Communication 1 Signaling (ATC) 2 Communications (WFiber Optic Backbone) 3 Wayside Protection System ctrification Items 1 Traction Power Supoly 2 Traction Power Supoly 2 ITraction Fower Supoly 3 IFleet size estimate Deport Facility Costs 1 Facility Costs 1 Facility cost breakdown Degram Implementation Costs Program Implementation Costs	Hectares Hectares Hectares Hectares Hectares Hectares Km km km km km km km km km km	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0, \$0, \$0, \$0, \$5,755,292 N \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0, \$0,	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	1144055 11004118
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System Ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution nicle Costs 1 Fleet size estimate Doport Facility Costs 1 Facility Costs 1 Facility cost breakdown Ingram Implementation Costs Program Implementation Costs Program Implementation Costs Ingress of Supplementation Costs Program Implementation Costs Ingress of Supplementation Costs Program Implementation Costs	Hectares Hectares Hectares Hectares Hectares Hectares Km km km km km km km km km km	\$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 Line Cost fr \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.280 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0,0 \$0,0 \$0,0 \$0,0 \$0,0 \$0,0 \$0,0 \$0,0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	114405

	COST ELEMENTS	UNIT	UNIT PRICE		QUAN	TITIES	
	OOT ELLMENTO	O.U.T	GMTTRIGE	Burbank Down (Metrolink/U	ntown Station	Burbank Dowr (I-5 va	
	3: San FernandoValley			(Option		(Option	
rack				Quantities	Item Cost	Quantities	Item Cost
2		km km	\$846,282	0.000	\$0	0.000	1
3	Double Track Section - On Structure	km	\$1,600,459	0.000	\$0	0.000	\$
4		km	\$1,600,459	0.000	\$0	0.000	\$
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	<u> </u>
6		km	\$846,282	0.000	\$0	0.000	9
7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	5
9		km	\$1,692,564	0.000	\$0	0.000	
ar un	Nwork and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	0.000	•
	Total Cut	m3	\$7.59	0.0	\$0	0.0	
	Total Fill	m3	\$7.59	0.0	\$0	0.0	\$
	Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000	
	Security Fencing (Both Sides of R/W) Special Drainage Facilities	km 5% of Fa	\$86,687 arthwork Cost	0.000	\$0 \$0	0.000	
	tures/Tunnels/Walls						
	Standard Structure	km	\$11,702,749	0.000	\$0	0.000	
	High Structure	km	\$14,043,299	0.000	\$0	0.000	
	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0.000	\$0 \$0	0.000	
Ė	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.000	\$0	0.000	
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150		\$0		
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589 \$67.185.592	0.000	\$0	0.000	
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733		\$0 \$0		
	Double Track Mined (Soft Soil)	km	\$82,012,758		\$0 \$0		
10	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844		\$0		
	Crossovers	ea	\$80,782,844	0.000	\$0	0.000	
	Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0	0.000	:
14	Trench Long	km	\$42,322,835 \$33,464,567	0.000	\$0	0.000	
15	Mechanical & Electrical for Tunnels	km	\$1,645,723	0.000	\$0	0.000	
	Retaining Walls	km	\$3,749,214	0.000	\$0	0.000	
	Containment Walls Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0.000	\$0 \$0	0.000	:
	e Separations	KIII	\$23,020,707	0.000	30	0.000	
1		ea	\$14,628,436	0	\$0	0	
2	5 , ,	ea	\$5,526,298	0	\$0	0	
3		ea	\$931,886	0	\$0	0	
7		ea	\$15,278,589	0	\$0	0	
8		ea	\$5,851,374	0	\$0	0	
9		ea	\$986,065	0	\$0	0	
10	Street Bridging HSR Trench	ea	\$1,500,000	0	\$0	0	
21	Minor crossing closures	ea	\$151,702	0	\$0	0	:
uild	ling Items						
1	Intermediate Passenger Stations			1		1	
+	Sylmar Station (Aerial) Burbank Airport Station (In Trench)		\$171,844,500 \$366,068,000	0	\$0 \$0	0	
	Burbank Downtown Station (Metrolink/UPRR Variant) (Aerial)		\$171,844,500	1	\$171,844,500	0	
	Burbank Downtown Station (I-5 Variant) (Aerial)		\$171,844,500	0	\$0	1	\$171,844,5
2			****	1,073	\$15,283,812	0 1,073	\$15,283,8
4	Parking - Structure Parking - At Grade	space space	\$14,244 \$2,042	1,073	\$15,263,612	1,073	\$10,200,0
	and Utility Relocation					- 1	
1	3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	km	\$1,083,588	0.000	\$0	0.000	
2		km	\$1,083,588	0.000	\$0	0.000	
	Single Track Removal Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000	\$0 \$0	0.000	
	Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	
6	Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0.000	
7	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0	0.000	
	t-of-Way	KIII	\$11,919	0.000	\$0	0.000	
iaht	Right-of-Way Required for Each Segment						
			*0.400.000		\$0	0.000	
	Dense Urban	Hectares	\$3,499,093	0.000			
	Dense Urban Urban	Hectares	\$2,332,729	0.000	\$0	0.000	
	Dense Urban Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0.000 0.000	\$0 \$0	0.000 0.000	
	Dense Urban Urban Dense Suburban Suburban	Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227	0.000 0.000 0.000	\$0 \$0 \$0	0.000 0.000 0.000	
	Dense Urban Urban Dense Suburban Suburban Undeveloped	Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000	
1	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093	0.000 0.000 0.000 0.000 0.280	\$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000	\$979,7
1	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban	Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729	0.000 0.000 0.000 0.000 0.280 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000 0.000 0.280 0.000	\$979,7
1	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093	0.000 0.000 0.000 0.000 0.280	\$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000	\$979,7
2	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364	0.000 0.000 0.000 0.000 0.280 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$979,746 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000	\$979,7
1 2	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Undeveloped Onmental Mitigation	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000	\$979,7
1 2 2 nvir	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Urban Urban Urban Undeveloped Onmental Mitigation	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000 0.280 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$979,746 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000	\$979,7
1 2 2 Environment	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Undeveloped Indeveloped Indevel	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares 3% o	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000	\$979,7 5613849
1 2 2 Environment	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Urban Urban Urban Undeveloped Onmental Mitigation	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000	\$979,7 5613849
2 2 Enwigna 1 2 3	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Onnmental Mitigation vironmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,327,729 \$1,166,364 \$408,227 \$291,591	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.280 0.000 0.000 0.000 0.000	\$979,7 5613849
2 2 Environment 1 2 3 3 ecti	Dense Urban Urban Urban Urban Urban Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation vironmental Mitigation signaling (ATC) Communications (Wriber Optic Backbone) Wayside Protection System rification Items	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,327,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 \$979,7 5613849.
2 Environment 1 2 3	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Undeveloped Onnental Mitigation wironmental Mitigation Signaling (ATC) Communication (Wriber Optic Backbone) Wasyide Protection System Fification I tems Traction Power Supply	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Ketares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
1 2 2 Environment	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Dense Suburban Suburban Undeveloped Onnental Mitigation vironmental Mitigation vironmental Mitigation Signaling (ATC) Communications (WFiber Optic Backbone) Wayside Protection System Irraction Power Supply Traction Power Distribution	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman Komman	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,327,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
1 1 2 2 Invir	Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Fraction Power Supply Traction Power Supply Traction Power Distribution Items Item 1	Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
1 2 Envergence 1 2 3 ect 1 2 2 echic	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Urban Undeveloped Onnental Mitigation wironmental Mitigation Wironmental Mitigation Signaling (ATC) Communications (W/Fiber Optic Backbone) Wasyide Protection System Frification I tems Traction Power Supply Traction Power Distribution Delec Costs	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Ketares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
2 2 2 3 3 cect 1 2 2 chic 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dense Urban Urban Urban Dense Suburban Suburban Suburban Indeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Undeveloped Onmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Fraction Power Supply Traction Power Supply Traction Power Distribution Items Item 1	Hectares Hectares	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Urban Dense Suburban Urban Urban Ommental Mitigation Vironmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Virfication I tems Traction Power Supply Traction Power Distribution Cie Costs Fleet size estimate ort Facility Costs Facility Costs Facility cost breakdown Famil Implementation Costs	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Km km km km km	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$79,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979, 5613849
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Suburban Urban Dense Suburban Undeveloped Onnental Mitigation wironmental Mitigation Wironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Fification I tems Trraction Power Supply Traction Power Distribution Ce Costs Fleet size estimate Ort Facility Costs Facility cost breakdown Fram Implementation Costs gram Implementation Costs	Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849
2 2 Envir	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Vonmental Mitigation Vornmental Mitigation Vornmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Virfication Items Traction Power Supply Trraction Power Distribution Cie Costs Fleet size estimate Ort Facility Costs Facility Cost Facility cost breakdown Varam Implementation Costs Ingencies	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Letters Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$79,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849 4939908
2 2 Envir	Dense Urban Urban Dense Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Dense Suburban Urban Dense Suburban Urban Urban Ommental Mitigation Uronmental Miti	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Letters Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost \$720,586 \$595,973 \$57,213 \$388,420 \$686,995	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$979,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979,7 5613849. 49399086 48430476.
2 2 Inviriant Section	Dense Urban Urban Dense Suburban Suburban Suburban Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban Urban Urban Dense Suburban Suburban Undeveloped Vonmental Mitigation Vornmental Mitigation Vornmental Mitigation Vironmental Mitigation Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System Virfication Items Traction Power Supply Trraction Power Distribution Cie Costs Fleet size estimate Ort Facility Costs Facility Cost Facility cost breakdown Varam Implementation Costs Ingencies	Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Hectares Letters Hectares Hec	\$2,332,729 \$1,166,364 \$408,227 \$291,591 \$3,499,093 \$2,332,729 \$1,166,364 \$408,227 \$291,591 f Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$0 \$0 \$0 \$0 \$79,746 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	\$979.7 \$613849. 4939908

COST ELEMENTS	UNIT	UNIT PRICE		QUANTI		
			Existing		Existing LAUS	
				onnection	w/East Connection	
REA 4: Los Angeles Union Station			(Option		(Option 4	
ack 1 Double Track Section - Total	km		Quantities 5.730	Item Cost	Quantities 5.890	Item Cost
2 Double Track Section - At-Grade	km	\$846,282	0.000	\$0	0.000	
3 Double Track Section - On Structure	km	\$1,600,459	5.730	\$9,170,632	5.890	\$9,426,
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0	0.000	
5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0 \$0	0.000	
Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0	0.000	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	
rthwork and Related Items				*		
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	17.365	\$178,757 \$0	17.876 0.0	\$184
3 Total Fill	m3	\$7.59	0.0	\$0	0.0	
6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000	
7 Security Fencing (Both Sides of R/W)	km	\$86,687	0.000	\$0	0.000	
8 Special Drainage Facilities ructures/Tunnels/Walls	5% of Ear	rthwork Cost		\$8,938		\$9
1 Standard Structure	km	\$11,702,749	0.270	\$3,159,742	1.500	\$17,554
2 High Structure	km	\$14,043,299	5.150	\$72,322,987	4.380	\$61,509
3 Long Span Structure	km	\$32,020,021	0.300	\$9,606,006	0.000	
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	
Waterway Crossing - Secondary (Irrigation/Canal Crossing) 5 Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0.000	\$0 \$0	0.000	
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	\$0	0.000	
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592		\$0		-
8 Double Track Mined (Soft Soil)	km	\$71,355,733		\$0 \$0		
9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0		
11 Crossovers	ea	\$80,782,844		\$0		
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	
14 Trench Long 15 Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$0 \$0	0.000	
16 Retaining Walls	km	\$3,749,214	0.000	\$0	0.000	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
de Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	
Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374 \$986,065	0	\$0 \$0	0	
10 Street Undercrossing HSR - (Undeveloped)	ea ea	\$986,065	0	\$0 \$0	0	
21 Minor crossing closures	ea	\$151,702	0	\$0	0	
ilding Items						
1 Intermediate Passenger Stations 2 Terminal Passenger Stations	ea	/A	0	\$0	0	
Existing LAUS with South Connection	ea	\$96,324,000	1	\$96,324,000	0	
Existing LAUS with East Connection	ea	\$96,324,000	0	\$0	1	\$96,32
LAUS South	ea	\$96,324,000	0	\$0	0	
LAUS East Bank (Over 110-Fwy Variant) LAUS East Bank (Under 110-Fwy Variant)	ea	\$96,324,000 \$96,324,000	0	\$0 \$0	0	
3 Parking - Structure	ea space	\$14,244	3,036	\$43,244,784	3,036	\$43,24
4 Parking - At Grade	space	\$2,042	0	\$0	0	
I and Utility Relocation						
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	
2 Single Track Relocation (Permanent) 3 Single Track Removal	km km	\$1,083,588 \$54,000	0.000	\$0 \$0	0.000	
4 Major Utility Relocations - Dense Urban	km	\$758,511	5.800	\$4,399,367	5.900	\$4,475
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	
6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0.000	
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0	0.000	
8 Major Utility Relocations - Undeveloped ht-of-Way	KITI	211,414	0.000	\$0	0.000	
1 Right-of-Way Required for Each Segment						
Dense Urban	Hectares	\$3,499,093	17.700	\$61,933,948	18.100	\$63,33
Urban Dense Suburban	Hectares	\$2,332,729	0.000	\$0	0.000	
Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	
Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities			-			_
Dense Urban Urban	Hectares	\$3,499,093	5.120	\$17,915,357	5.120	\$17,91
	Hectares Hectares	\$2,332,729 \$1,166,364	0.000	\$0 \$0	0.000	
Dense Suburban	Hectares	\$408,227	0.000	\$0	0.000	
Dense Suburban Suburban		\$291,591	0.000	\$0	0.000	
Suburban Undeveloped	Hectares					\$7,41
Suburban Undeveloped irronmental Mitigation		Line Cost	Т	\$7 E70 024		
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation		Line Cost		\$7,570,034		\$7,41
Suburban Undeveloped vironmental Mitigation Environmental Mitigation nals and Communication		Line Cost \$720,586	5.730	\$7,570,034 \$4,128,957	5.890	
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation als and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	3% of	\$720,586 \$595,973	5.730	\$4,128,957 \$3,414,927	5.890	\$4,24 ⁴ \$3,510
Suburban Undeveloped Undeveloped Undeveloped Undeveloped Undeveloped Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System	3% of	\$720,586		\$4,128,957		\$4,24 \$3,510
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Is and Communication I Signaling (ATC) 2 Communication (W/Fiber Optic Backbone) 3 Wayside Protection System ctrification I tems	3% of	\$720,586 \$595,973 \$57,213	5.730 5.730	\$4,128,957 \$3,414,927 \$327,833	5.890 5.890	\$4,244 \$3,510 \$336
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ArC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System ctrification Items 1 Traction Power Supply	3% of	\$720,586 \$595,973	5.730	\$4,128,957 \$3,414,927	5.890	\$4,24 \$3,51 \$33 \$2,16
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation In Signaling (ATC) Communication (W/Fiber Optic Backbone) Wyside Protection System Ctrification I tems Traction Power Supply Traction Power Distribution	3% of km km km km km	\$720,586 \$595,973 \$57,213 \$368,420	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046	5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution incle Costs 1 Fleet size estimate	3% of km km km km	\$720,586 \$595,973 \$57,213 \$368,420	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046	5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation In Signaling (ATC) 2 Communication (W/Fiber Optic Backbone) 3 Wayside Protection System Ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution Icle Costs 1 Fleet size estimate poort Facility Costs	3% of km km km km km km km km	\$720,586 \$595,973 \$57,213 \$368,420	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046	5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Inals and Communication I Signaling (ATC) 2. Communications (W/Fiber Optic Backbone) 3. Wayside Protection System ctrification I tems I Traction Power Supply 2. Traction Power Supply 2. Traction Power Distribution incle Costs I Fleet size estimate Doport Facility Costs 1 Facility Cost breakdown	3% of km km km km km	\$720,586 \$595,973 \$57,213 \$368,420	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046	5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation I Signaling (ATC) 2 Communication (WFIber Optic Backbone) 3 Wayside Protection System Ctrification I tems 1 Traction Power Supply 2 Traction Power Distribution Incle Costs 1 Fleet size estimate Dport Facility Costs 1 Fleet size of the Costs 1 Fleet size of the Costs 1 Fleet man of the Costs 1 Fleet ma	3% of km km km km km km km km km km km km km	\$720,586 \$595,973 \$57,213 \$368,420	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046	5.890 5.890 5.890	\$4,24 \$3,51(\$33) \$2,16(\$4,04)
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Is and Communication 1 Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System Striffication I terms 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution Include Costs 1 Fleet size estimate Doport Facility Costs 1 Facility cost breakdown gram Implementation Costs Program Implementation Costs Integral Power Supply Include Supply Su	3% of km km km km km km km km km km km 25.5% of Total Co	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046 \$3,936,480 \$86,637,217	5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169 \$4,046 \$85,602
Suburban Undeveloped Vironmental Mitigation Environmental Mitigation Environmental Mitigation 1 Signaling (ATC) Communications (w/Fiber Optic Backbone) Wayside Protection System ctrification I terms Traction Power Supply Traction Power Supply Fleet size estimate 1 Fleet size estimate port Facility Costs Facility cost breakdown gram Implementation Costs	3% of km km km km km km km km km km km 25.5% of Total Co	\$720,586 \$595,973 \$57,213 \$368,420 \$686,995	5.730 5.730 5.730	\$4,128,957 \$3,414,927 \$327,833 \$2,111,046 \$3,936,480	5.890 5.890 5.890 5.890	\$4,244 \$3,510 \$336 \$2,169 \$4,046 \$85,602 \$83,923 \$247,035,4

COST ELEMENTS	UNIT	UNIT PRICE		QUANTI			
			LAUS So		LAUS East Bank (Over 110-FWY variant)		
EEA 4: Los Angeles Union Station			(Option 4 uantities	.03) Item Cost	(Option 4. Quantities	04A) Item Cost	
1 Double Track Section - Total	km		5.230	item cost	7.310	rtem cost	
Double Track Section - At-Grade	km	\$846,282	0.000	\$0	0.000		
3 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	5.230 0.000	\$8,370,402 \$0	7.310 0.000	\$11,699,	
5 Double Track Section - In Trumer of Subway	km	\$1,600,459	0.000	\$0	0.000		
Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000		
6 Freight Double Track 7 Freight Single Track	km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000		
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000		
rthwork and Related Items							
1 Site Preparation - Undeveloped 2 Total Cut	Hectares m3	\$10,294 \$7.59	15.845 0.0	\$163,110 \$0	22.159 0.0	\$228,	
3 Total Fill	m3	\$7.59	0.0	\$0	0.0		
6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000		
7 Security Fencing (Both Sides of R/W) 8 Special Drainage Facilities	km	\$86,687 rthwork Cost	0.000	\$0 \$8,155	0.000	\$11,	
ructures/Tunnels/Walls	376 OI Ed	triwork cost		30,133		Φ11 ,	
1 Standard Structure	km	\$11,702,749	1.230	\$14,394,381	0.540	\$6,319	
2 High Structure 3 Long Span Structure	km	\$14,043,299 \$32,020,021	3.980 0.000	\$55,892,328 \$0	6.560 0.200	\$92,124 \$6,404	
4 Waterway Crossing - Primary	km km	\$24,606,000	0.000	\$0	0.000	\$0,404	
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.000	\$0	0.000		
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0	0.000		
6 Twin Single Track TBM (<6 Miles) 7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0.000	\$0 \$0	0.000		
8 Double Track Drill & Blast	km	\$71,355,733		\$0			
9 Double Track Mined (Soft Soil) 10 Science Chamber (Drill & Plast Mined)	km	\$82,012,758		\$0			
10 Seismic Chamber (Drill & Blast/Mined) 11 Crossovers	ea ea	\$80,782,844 \$80,782,844		\$0 \$0			
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000		
13 Trench Short	km	\$42,322,835	0.000	\$0	0.000	-	
14 Trench Long 15 Mechanical & Electrical for Tunnels	km	\$33,464,567	0.000	\$0 \$0	0.000		
16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0 \$0	0.000		
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000		
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000		
ade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0		
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0		
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0		
7 Street Undercrossing HSR - (Urban) 8 Street Undercrossing HSR - (Suburban)	ea ea	\$15,278,589 \$5,851,374	0	\$0 \$0	0		
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0		
10 Street Bridging HSR Trench	ea	\$1,500,000	0	\$0	0		
21 Minor crossing closures ilding Items	ea	\$151,702	0	\$0	0		
1 Intermediate Passenger Stations	ea		0	\$0	0		
2 Terminal Passenger Stations		I/A	1		1		
Existing LAUS with South Connection	ea	\$96,324,000	0	\$0	0		
Existing LAUS with East Connection LAUS South	ea ea	\$96,324,000 \$96,324,000	0	\$0 \$96,324,000	0		
LAUS East Bank (Over 110-Fwy Variant)	ea	\$96,324,000	0	\$0	1	\$96,324	
LAUS East Bank (Under 110-Fwy Variant)	ea	\$96,324,000	0	\$0	0		
3 Parking - Structure 4 Parking - At Grade	space space	\$14,244 \$2,042	3,036	\$43,244,784 \$0	3,036	\$43,24	
I and Utility Relocation	Space	\$2,042	- U	30	0		
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000		
2 Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0	0.000		
3 Single Track Removal 4 Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000 5.300	\$0 \$4,020,111	0.000 7.300	\$5,53	
5 Major Utility Relocations - Urban	km	\$579,719	0.000	\$0	0.000	20,00	
6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0.000		
7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0	0.000		
ht-of-Way	KIII	ψ11,717	0.000	30	3.000		
1 Right-of-Way Required for Each Segment							
Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	16.100 0.000	\$56,335,399 \$0	22.500 0.000	\$78,72	
Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000		
Suburban	Hectares	\$408,227	0.000	\$0	0.000		
Undeveloped 2. Pight of Way Poquired for Passanger Station & Parking Facilities	Hectares	\$291,591	0.000	\$0	0.000		
2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares	\$3,499,093	4.800	\$16,795,647	4.800	\$16,795	
Urban	Hectares	\$2,332,729	0.000	\$10,773,047	0.000	ψ.ιο,//7.	
Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000		
Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0.000	\$0 \$0	0.000		
rironmental Mitigation			5.555		0.000		
Environmental Mitigation	3% of	Line Cost		\$7,053,658		\$8,389	
nals and Communication 1 Signaling (ATC)	km	\$720,586	5.230	\$3,768,664	7.310	\$5,26	
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	5.230	\$3,116,940	7.310	\$4,356	
3 Wayside Protection System	km	\$57,213	5.230	\$299,226	7.310	\$418	
trification Items Traction Power Supply	km	\$368,420	5.230	\$1,926,836	7.310	\$2,693	
2 Traction Power Distribution	km	\$686,995	5.230	\$3,592,982	7.310	\$2,093	
nicle Costs							
1 Fleet size estimate	vehicles						
nnort Facility Costs							
pport Facility Costs 1 Facility cost breakdown	ea		1				
poport Facility Costs 1 Facility cost breakdown pgram Implementation Costs	ea						
poport Facility Costs 1 Facility cost breakdown ggram Implementation Costs Program Implementation Costs		ost and Procurement		\$80,403,189		\$97,808	
poort Facility Costs 1 Facility cost breakdown gram Implementation Costs Program Implementation Costs htingencies	25.5% of Total Co					\$97,808 \$95.891	
pport Facility Costs	25.5% of Total Co	ost and Procurement Construction Cost		\$80,403,189 \$78,826,656 235,121,920		\$97,80 \$95,89 279,649,	

	COST ELEMENTS	UNIT	UNIT PRICE	QUANT	
				LAUS Ea (Under 110-F	
	A 4: Los Angeles Union Station			(Option	4.04B)
Trac	Double Track Section - Total	km		Quantities 7.310	Item Cost
2	2 Double Track Section - At-Grade	km	\$846,282	0.000	\$0
	3 Double Track Section - On Structure 4 Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	7.310 0.000	\$11,699,357 \$0
	5 Double Track Section - In Trench	km	\$1,600,459	0.000	\$0
	Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$C \$C
7	7 Freight Single Track	km	\$423,141	0.000	\$0
	9 Four-track construction or reconstruction Chwork and Related Items	km	\$1,692,564	0.000	\$0
	1 Site Preparation - Undeveloped	Hectares	\$10,294	22.159	\$228,107
	2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	0.0	\$0 \$0
	6 Landscape/Erosion Control 7 Security Fencing (Both Sides of R/W)	Hectares km	\$6,881	0.000	\$0
	8 Special Drainage Facilities		\$86,687 Earthwork Cost	0.000	\$0 \$11,405
	Ictures/Tunnels/Walls 1 Standard Structure	km	\$11,702,749	1.180	\$13,809,244
	High Structure	km	\$14,043,299	5.920	\$83,136,327
	3 Long Span Structure	km	\$32,020,021	0.200 0.000	\$6,404,004
	Waterway Crossing - Primary Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0.000	\$0 \$0
	5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0
	6 Twin Single Track TBM (<6 Miles) 7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km km	\$47,261,589 \$67,185,592	0.000	\$0 \$0
	8 Double Track Drill & Blast	km	\$71,355,733		\$0
	9 Double Track Mined (Soft Soil) 10 Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844		\$0 \$0
1	11 Crossovers	ea	\$80,782,844		\$0
	Cut & Cover Double Track Tunnel	km km	\$41,006,379 \$42,322,835	0.000	\$0 \$0
1	4 Trench Long	km	\$33,464,567	0.000	\$0
	15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0 \$0
1	7 Containment Walls	km	\$1,278,634	0.000	\$0
	18 Single Track Cut and Cover Subway de Separations	km	\$25,628,987	0.000	\$0
1	1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0
	2 Street Overcrossing HSR - (Suburban) 3 Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	0	\$0 \$0
7	7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0
	8 Street Undercrossing HSR - (Suburban) 9 Street Undercrossing HSR - (Undeveloped)	ea	\$5,851,374 \$986,065	0	\$0 \$0
1	0 Street Bridging HSR Trench	ea	\$1,500,000	0	\$0
	21 Minor crossing closures ding Items	ea	\$151,702	0	\$0
1	1 Intermediate Passenger Stations	ea		0	\$0
2	Terminal Passenger Stations Existing LAUS with South Connection	ea	N/A \$96,324,000	1 0	\$0
	Existing LAUS with East Connection	ea	\$96,324,000	0	\$0
	LAUS South LAUS East Bank (Over 110-Fwy Variant)	ea	\$96,324,000 \$96,324,000	0	\$0 \$0
	LAUS East Bank (Under 110-Fwy Variant)	ea	\$96,324,000	1	\$96,324,000
	Parking - Structure 4 Parking - At Grade	space space	\$14,244 \$2,042	3,036	\$43,244,784 \$0
Rail	and Utility Relocation				
1	1 Single Track Relocation (Temporary) 2 Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0.000	\$0 \$0
	3 Single Track Removal	km	\$54,000	0.000	\$0
	Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	7.300 0.000	\$5,537,134 \$0
	6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0
	7 Major Utility Relocations - Suburban 8 Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	0.000	\$0 \$0
	nt-of-Way				
	1 Right-of-Way Required for Each Segment Dense Urban	Hectares	\$3,499,093	22.500	\$78,729,595
	Urban	Hectares	\$2,332,729	0.000	\$0
	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0
	Undeveloped	Hectares	\$291,591	0.000	\$0
1	2 Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares	\$3,499,093	4.800	\$16,795,647
	Urban	Hectares	\$2,332,729	0.000	\$0
	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0
ш	Undeveloped	Hectares	\$291,591	0.000	\$0
	ironmental Mitigation nvironmental Mitigation	3%	of Line Cost		\$8,344,552
Sign	nals and Communication				
	1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	7.310 7.310	\$5,267,483 \$4,356,565
		km	\$57,213	7.310	\$418,230
2	3 Wayside Protection System		\$368,420	7.310	\$2,693,149
Elec	trification Items	km			V=,U/J,147
Elec	trification I tems 1 Traction Power Supply 2 Traction Power Distribution	km km	\$686,995	7.310	\$5,021,931
Elec	trification Items 1 Traction Power Supply 2 Traction Power Distribution Icle Costs	km			\$5,021,931
Elec Vehi	trification Items 1 Traction Power Supply 2 Traction Power Distribution icle Costs 1 Fleet size estimate port Facility Costs	km			\$5,021,931
Elec Vehi Sup	trification Items 1 Traction Power Supply 2 Traction Power Distribution icle Costs 1 Fleet size estimate port Facility Costs 1 Facility cost breakdown	km			\$5,021,931
Vehi Supp	trification Items 1 Traction Power Supply 2 Traction Power Distribution icle Costs 1 Fleet size estimate port Facility Costs 1 Facility Cost breakdown gram Implementation Costs rogram Implementation Costs	km vehicles			
Vehi Supp Proc	trification I tems 1 Traction Power Supply 2 Traction Power Distribution icle Costs 1 Fleet size estimate port Facility Costs 1 Facility Costs 1 Facility cost breakdown gram Implementation Costs rogram Implementation Costs tingencies	vehicles ea 25.5% of Total	\$686,995		\$97,415,486
Vehi Supp Proc	trification Items 1 Traction Power Supply 2 Traction Power Distribution icle Costs 1 Fleet size estimate port Facility Costs 1 Facility Cost breakdown gram Implementation Costs rogram Implementation Costs	vehicles ea 25.5% of Total	\$686,995		\$5,021,931 \$97,415,486 \$95,505,379 \$278,151,721 \$382,021,514

Capital Cost Estimate CAHSRA Program EIR/EIS Bakersfield - Los Angeles Tehachapi Crossing

		OOGT ELEMENTO		Tehachapi Crossing		CHANT	ITIEC	
A 1:		COST ELEMENTS	UNIT	UNIT PRICE	L F Tabaabaai O	QUANT		liament antique
Trac		nent Cost			I-5 Tehachapi C	Item Cost	Soledad Canyon A Quantities	Item Cost
		Double Track Section - Total	km		90.805	rtem cost	55.247	item cost
	2	Double Track Section - At-Grade	km	\$846,282	38.050	\$32,201,034	30.665	\$25,951,24
	3	Double Track Section - On Structure	km	\$1,600,459	15.755	\$25,215,235	12.997	\$20,801,169
	4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	37.000	\$59,216,992	11.585	\$18,541,320
	5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	\$0 \$0	0.000	\$0 \$0
(6	Freight Double Track	km	\$846,282	0.000	\$0	0.000	\$(
	7	Freight Single Track	km	\$423,141	0.000	\$0	0.000	\$0
	9	Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
		vork and Related Items Site Preparation - Undeveloped	Hectares	\$10,294	589.619	\$6.069.590	371.281	\$3,822,002
		Total Cut	m3	\$7.59	90319373.8	\$685,082,831	33108368.2	\$251,130,778
* /	3	Total Fill	m3	\$7.59	60009367.3	\$455,177,948	21926507.1	\$166,315,076
		Landscape/Erosion Control	Hectares km	\$6,881 \$86,687	589.619 38.050	\$4,057,042	371.281	\$2,554,700
		Security Fencing (Both Sides of R/W) Special Drainage Facilities		f Earthwork Cost	38.030	\$3,298,441 \$57,684,293	30.665	\$2,658,258 \$21,324,04
		ures/Tunnels/Walls				,,		. , . , . ,
		Standard Structure	km	\$11,702,749	12.605	\$147,513,148	12.647	\$148,004,663
		High Structure Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000 3.050	\$0 \$97,661,064	0.000 0.250	\$8,005,00
		Waterway Crossing - Primary	km	\$24,606,000	0.100	\$2,460,600	0.100	\$2,460,600
	١	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.000	\$0	0.000	\$0
		Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0.000 37.000	\$0 \$1,748,678,799	0.000 11.585	\$547,525,510
	7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$1,748,678,799	0.000	\$547,525,510 \$(
8	8 [Double Track Drill & Blast	km	\$71,355,733	0.000	\$0	0.000	\$0
		Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km	\$82,012,758	0.000	\$0 \$0	0.000	\$(
		Seismic Chamber (Drill & Blast/Mined) Crossovers	ea ea	\$80,782,844 \$80,782,844	0	\$0 \$0	0	\$0 \$0
1	2 (Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0	0.000	\$0
		Trench Short	km	\$42,322,835	0.000	\$0	0.000	\$0
		Trench Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000 37.000	\$0 \$60,891,739	0.000 11.585	\$19,065,691
		Retaining Walls	km	\$3,749,214	2.300	\$8,623,192	0.00	\$17,003,07
		Containment Walls	km	\$1,278,634	0.00	\$0	0.00	\$0
		Single Track Cut and Cover Subway Separations	km	\$25,628,987	0.00	\$0	0.00	\$(
		Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	\$(
		Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	2	\$11,052,596	2	\$11,052,596
	_	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	7	\$6,523,199	1	\$931,886
	_	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	\$(
8	_	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	\$0
(9 5	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	3	\$2,958,195
1	0 5	Street Bridging HSR Trench	ea		0	\$0	0	\$0
_	_	Minor crossing closures	ea	\$151,702	1	\$151,702	0	\$0
		ng Items						
		Intermediate Passenger Stations Terminal Passenger Stations	ea ea					
* /	3 F	Parking - Structure	space	\$14,244	0	\$0	0	\$(
		Parking - At Grade	space	\$2,042	0	\$0	0	\$0
		nd Utility Relocation Single Track Relocation (Temporary)	lone	\$1,083,588	0.000	40	0.000	t.
		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588	0.000	\$0 \$0	0.000	\$0 \$0
* /	3 5	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
		Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	\$(
		Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	0.000	\$0 \$0	0.000	\$0 \$0
		Major Utility Relocations - Suburban	km	\$232,971	0.000	\$0	0.000	\$0
		Major Utility Relocations - Undeveloped	km	\$11,919	53.805	\$641,327	43.662	\$520,428
		of Way Items Right-of-Way Required for Each Segment				T	Т	
	+	Right-or-way Required for Each Segment Dense Urban	Hectares	\$3,499,093	0	\$0	0	\$0
	1	Urban	Hectares	\$2,332,729	0	\$0	0	\$0
$\vdash \vdash$	+	Dense Suburban	Hectares	\$1,166,364	0	\$0 \$0	0	\$0 \$0
\dashv	\dashv	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	276.77364	\$80,704,712	168.392856	\$49,101,84
- 2	2 F	Right-of-Way Required for Passenger Station & Parking Facilities						
_	4	Dense Urban	Hectares	\$3,499,093	0	\$0	0	\$0
+	+	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	0	\$0 \$0	0	\$0 \$0
		Suburban	Hectares	\$408,227	0	\$0	0	\$0
	I	Undeveloped	Hectares	\$291,591	0	\$0	0	\$0
		nmental Mitigation commental Mitigation	200	6 of Line Cost	1	\$108,983,494	-	\$41,634,854
		s and Communication	3%	O OF LINE COST		\$100,783,474		\$41,034,85¢
Ĭ	1 5	Signaling (ATC)	km	\$720,586	90.805	\$65,432,804	55.247	\$39,810,210
		Communications (w/Fiber Optic Backbone)	km	\$595,973	90.805	\$54,117,357	55.247	\$32,925,738
		Wayside Protection System fication I tems	km	\$57,213	90.805	\$5,195,266	55.247	\$3,160,87
		Traction Power Supply	km	\$368,420	90.805	\$33,454,366	55.247	\$20,354,092
- 2	2	Traction Power Distribution	km	\$686,995	90.805	\$62,382,553	55.247	\$37,954,396
Vehi	icl	e Costs						
		Fleet size estimate	vehicles	44000000		\$0		\$1
		rt Facility Costs				*^		
		Facility cost breakdown am Implementation Costs	ea	0		\$0		\$
		ram Implementation Costs	25.5% of Tota	al Cost and Procurement		\$974,730,188		\$377,034,12
		igencies		a. a. a. a. a. a. a. a. a. a. a. a. a. a		+771,700,100		ψ5,7,001,12
C	onti	ingencies	25% of To	tal Construction Cost		\$955,617,831		\$369,641,29
		Construction				\$3,632,783,120		\$1,387,828,479
Tota		Construction and Right of Way				\$3,822,471,325 \$5,752,819,344		\$1,478,565,180 \$2,225,240,596
		Total						

Capital Cost Estimate CAHSRA Program EIR/EIS Bakersfield - Los Angeles Tehachapi Crossing

Track	COST ELEMENTS nent Cost				
Track	nent Cost	UNIT	UNIT PRICE	QUANT	
1 [2 3 4 5 5 6				SR-58 Alignm	
2 3 4 5				Quantities	Item Cost
3 4 5	Double Track Section - Total	km		73.847	
5 6	Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	61.700 2.147	\$52,215,600 \$3,436,180
5	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km	\$1,600,459	10.000	\$16,004,593
6	Double Track Section - In Trench	km	\$1,600,459	0.000	\$10,004,37
	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$1
7	Freight Double Track	km	\$846,282	0.000	\$1
	Freight Single Track	km	\$423,141	0.000	\$1
9	Four-track construction or reconstruction	km	\$1,692,564	0.000	\$1
	work and Related Items		440.004	/50.004	4/ 77/ 10
	Site Preparation - Undeveloped Total Cut	Hectares m3	\$10,294 \$7.59	658.284 65708237.4	\$6,776,42° \$498,404,53°
	Total Fill	m3	\$7.59	44107775.0	\$334,562,54
	Landscape/Erosion Control	Hectares	\$6,881	658.284	\$4,529,50
	Security Fencing (Both Sides of R/W)	km	\$86,687	61.700	\$5,348,59
	Special Drainage Facilities	5% o	f Earthwork Cost		\$42,481,08
	ures/Tunnels/Walls	Loren	611 700 740	4.747	************
	Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	1.747 0.000	\$20,444,70
	Long Span Structure	km	\$32,020,021	0.400	\$12,808,00
4 \	Waterway Crossing - Primary	km	\$24,606,000	0.000	\$1
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0.000	\$1
	Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$
	Twin Single Track TBM (<6 Miles)	km	\$47,261,589	10.000	\$472,615,89
	Twin Single Track TBM w/3rd Tube (>6 Miles) Double Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0.000	\$1
	Double Track Mined (Soft Soil)	km	\$82,012,758	0.000	\$
10 5	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$
	Crossovers	ea	\$80,782,844	0	\$
	Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$
	Trench Short	km	\$42,322,835	0.000	\$
	Trench Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	0.000	\$ \$16,457,22
	Retaining Walls	km	\$3,749,214	0.00	\$10,437,22
	Containment Walls	km	\$1,278,634	0.00	\$1
	Single Track Cut and Cover Subway	km	\$25,628,987	0.00	\$
Grade	Separations				
	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$1
2 9	Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$1
3 5	Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	35	\$32,615,99
7 9	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$1
8 9	Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$1
9 9	Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	15	\$14,790,97
10 5	Street Bridging HSR Trench	ea		0	\$1
	Minor crossing closures	ea	\$151,702	0	\$0
	ng Items		<u> </u>		
1 1	Intermediate Passenger Stations	ea			
	Terminal Passenger Stations	ea			
	Parking - Structure	space	\$14,244	0	\$1
	Parking - At Grade nd Utility Relocation	space	\$2,042	0	\$1
	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$
	Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$1
	Single Track Removal	km	\$54,000	0.000	\$1
	Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$
	Major Utility Relocations - Urban	km	\$579,719	0.000	\$1
	Major Utility Relocations - Dense Suburban	km km	\$406,345 \$232,971	0.000	\$I
	Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km	\$232,971	63.847	\$761,02
	of Way Items		V.1,7.17	00.017	\$701,0 <u>2</u>
	Right-of-Way Required for Each Segment				
	Dense Urban	Hectares	\$3,499,093	0	\$
$\sqcup \sqcup \Box$	Urban	Hectares	\$2,332,729	0	\$
	Dense Suburban	Hectares	\$1,166,364 \$408,227	0	\$
\Box	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0 225.085656	\$ \$65,632,95
2 1	Right-of-Way Required for Passenger Station & Parking Facilities	Hectales	\$271,071	223.000000	φυυ,υυ2,45
	Dense Urban	Hectares	\$3,499,093	0	\$
	Urban	Hectares	\$2,332,729	0	\$
\square	Dense Suburban	Hectares	\$1,166,364	0	\$
	Suburban Undeveloped	Hectares Hectares	\$408,227 \$291,591	0	\$ \$
Fnyiro	undeveloped	nectares	\$241,341	U	\$
	ronmental Mitigation	39	6 of Line Cost		\$51,409,23
	s and Communication				+31,107,20
	Signaling (ATC)	km	\$720,586	73.847	\$53,213,10
1 9	Communications (w/Fiber Optic Backbone)	km	\$595,973	73.847	\$44,010,84
1 5	Wayside Protection System	km	\$57,213	73.847	\$4,225,04
1 5 2 (ification Items		T		
1 5 2 0 3 N	Traction Power Supply	km	\$368,420	73.847	\$27,206,70 \$50,732,49
1 5 2 0 3 V		km	\$686,995	73.847	\$50,732,49
1 S 2 (3 N Electri	Traction Power Distribution				
1 5 2 (0 3 N Electri	e Costs	vohicles	AAAAAAA		e ·
1 5 2 0 3 N Electri 1 1 2 7 Vehicle 1 1 F	e Costs Fleet size estimate	vehicles	44000000		\$
1 5 6 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	e Costs Fleet size estimate ort Facility Costs				
1 S 2 (3) Electri 1 2 Vehicle 1 [5] Suppo	e Costs Fleet size estimate ort Facility Costs Facility cost breakdown	vehicles	44000000		
1 5 2 (3 1 1 1 1 1 1 1 1 1	e Costs Fleet size estimate ort Facility Costs	ea			\$
1 5 2 (3 3 N 1 1 1 1 1 1 1 1 1	e Costs Fleet size estimate ort Facility Costs Facility cost breakdown am Implementation Costs	ea	0		\$
1 5 2 (3 1 1 1 1 1 1 1 1 1	e Costs Fleet size estimate ort Facility Costs Facility cost breakdown am Implementation Costs ram Implementation Costs ingencies ingencies	ea 25.5% of Tot	0		\$466,824,23 \$457,670,81
1 5 2 6 3 N 2 6 3 N 3 N 4 1 7 5 1 7 5 1 7 6 7 7 7 7 7 7 7 7 7 7	e Costs Fleet size estimate ort Facility Costs Facility cost breakdown am Implementation Costs ram Implementation Costs ingencies ingencies Construction	ea 25.5% of Tot	0 al Cost and Procurement		\$466,824,23 \$457,670,81
1 5 2 6 3 N 2 6 3 N 3 N 4 1 7 5 1 7 5 1 7 6 7 7 7 7 7 7 7 7 7 7	e Costs Fleet size estimate ort Facility Costs Facility cost breakdown am Implementation Costs ram Implementation Costs ram Implementation Costs Upencies Upencies Upencies Construction Construction and Right of Way	ea 25.5% of Tot	0 al Cost and Procurement		\$466,824,23 \$457,670,81 \$1,713,641,072 \$1,830,683,264 \$2,755,178,312

		COST ELEMENTS	UNIT	UNIT PRICE		QUANT	ITIES	
Aligr	nm	nent Cost			1A Colto	n Line	1B UP	RR
rac		Oouble Track Section - Total	km		Quantities 91.66	Item Cost	Quantities 106.81	Item Cost
2	2	Double Track Section - At-Grade	km	\$846,282	57.00	\$48,238,080	65.20	\$55,177,59
3		Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	34.66 0.00	\$55,471,918 \$0	41.61	\$66,595,10 \$
5		Double Track Section - In Trench	km	\$1,600,459	0.00	\$0	0.00	\$
6	5	Single Track Sections - In Tunnel or Subway Freight Double Track	km km	\$1,000,287 \$846,282	0.00	\$0 \$0	0.00	\$
7	7	Freight Single Track	km	\$423,141	0.00	\$0	0.00	\$
	hν	Four-track construction or reconstruction vork and Related Items	km	\$1,692,564	0.00	\$0	0.00	\$
1		Site Preparation - Undeveloped Fotal Cut	Hectares m3	\$10,294 \$7.59	0.000 473100.0	\$0 \$3,588,518	0.000 541160.0	\$4,104,76
3	3 T	Total Fill	m3	\$7.59	0.0	\$0	0.0	\$
		andscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.000 57.000	\$0 \$4.941.161	0.000 65.200	\$5,651,99
8	3 5	Special Drainage Facilities		Earthwork Cost	37.000	\$426,484	03.200	\$487,83
		ures/Tunnels/Walls Standard Structure	km	\$11,702,749	34.66	\$405,617,272	41.61	\$486,951,37
2	2	ligh Structure	km	\$14,043,299	0	\$0	0	\$
		ong Span Structure Vaterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0	\$0 \$0	0	\$
	٧	Vaterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	\$
		Fwin Single Track Drill & Blast (<6 Miles) Fwin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0	\$0 \$0	0	\$
7	7]	win Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0	0	\$
		Oouble Track Drill & Blast Oouble Track Mined (Soft Soil)	km km	\$71,355,733 \$82,012,758	0	\$0 \$0	0	\$
10	0 5	Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	\$0	0	\$
		Crossovers Cut & Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379	0	\$0 \$0	0	\$
13	3 T	French Short	km	\$42,322,835	0	\$0	0	S
15	5 N	French Long Mechanical & Electrical for Tunnels	km km	\$33,464,567 \$1,645,723	13.2	\$441,732,283 \$0	0	\$
		Retaining Walls	km	\$3,749,214	0	\$0	0	\$
18	8 5	Containment Walls Single Track Cut and Cover Subway	km km	\$1,278,634 \$25,628,987	0	\$0 \$0	0	\$ \$
Grad	de	Separations Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	s
2	2 5	Street Overcrossing HSR - (Suburban)	ea ea	\$5,526,298	0	\$0	0	\$
		Street Overcrossing HSR - (Undeveloped) Street Undercrossing HSR - (Urban)	ea	\$931,886 \$15,278,589	0 36	\$0 \$550,029,191	0 18	\$ \$275,014,59
8	3 5	Street Undercrossing HSR - (Suburban)	ea ea	\$5,851,374	0	\$330,024,141	0	\$275,014,57
		Street Undercrossing HSR - (Undeveloped) Street Bridging HSR Trench	ea ea	\$986,065	0	\$0 \$0	0	\$ \$
21	1 N	Minor crossing closures	ea	\$151,702	12	\$1,820,428	6	\$910,21
		ng Items ntermediate Passenger Stations						
Ľ	ľ	El Monte (intermediate, at-grade, near exist tracks)	ea	\$26,979,000	1	\$26,979,000	0	\$
-	4	Pomona (intermediate, aerial, near existing tracks)	ea	\$164,703,000 \$26,979,000	1	\$164,703,000	0	\$26,979,00
	t	Ontario (intermediate, at-grade, near exist tracks) Colton (intermediate, at-grade, near exist tracks)	ea ea	\$26,979,000	1	\$26,979,000 \$26,979,000	0	\$28,979,00
	+	UCR (intermediate, aerial, not near existing tracks) South El Monte (intermediate, at-grade, near exist tracks)	ea ea	\$86,388,000 \$26,979,000	1 0	\$86,388,000 \$0	1 0	\$86,388,00 \$
		City of Industry (intermediate, at-grade, near exist tracks)	ea	\$28,704,000	0	\$0	1	\$28,704,00
2		San Bernardino (intermediate, aerial, not near existing tracks) Terminal Passenger Stations	ea	\$86,388,000	0	\$0	0	\$
		Parking Requirements	ea					
	+	El Monte (4-level auto parking structure) Pomona (3-level and 4-level auto parking structures)	space space	\$14,244 \$14,244	3709 3709	\$52,830,996 \$52,830,996	0	\$
	t	Ontario (surface parking)	space	\$2,042	732	\$1,494,744	732	\$1,494,74
-	4	Colton (surface parking) UCR (1 to 2-level and 2 to 3-level auto parking structures)	space space	\$2,042 \$14,244	1333 1333	\$2,721,986 \$18,987,252	0 1333	\$18,987,25
		South El Monte (2-level auto parking structure)	space	\$14,244	0	\$0	0	\$
	+	City of Industry (2-level structure and surface auto parking) San Bernardino (3-level, off-site auto parking structure)	space space	\$14,244 \$14,244	0	\$0 \$0	3709	\$52,830,99
Rail	ar	nd Utility Relocation	space	314,244	U	30	U _I	
1 2		Single Track Relocation (Temporary) Single Track Relocation (Permanent)	km km	\$1,083,588 \$1,083,588	0.000 165.72	\$0 \$179,572,178	0.000 175.62	\$190,299,69
3	3 5	Single Track Removal	km	\$54,000	0.00	\$0	0.00	\$
		Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	23.59 16.71	\$17,889,937 \$9,689,070	27.48 19.48	\$20,846,87 \$11,290,52
6	5 1	Major Utility Relocations - Dense Suburban	km	\$406,345	9.149	\$3,717,560	10.661	\$4,332,01
		Major Utility Relocations - Suburban Major Utility Relocations - Undeveloped	km km	\$232,971 \$11,919	1.789 40.423	\$416,897 \$481,818	2.085 47.104	\$485,80 \$561,45
≀igh	ıt-	of-Way	MIII	911,717	70.723	910,1010	77.104	9501,40
1	ı F	Right-of-Way Required for Each Segment Dense Urban	Hectares	\$3,499,093	35.94	\$125,772,911	41.89	\$146,561,25
	1	Urban	Hectares	\$2,332,729	25.47	\$59,417,366	29.68	\$69,238,15
+	+	Dense Suburban Suburban	Hectares Hectares	\$1,166,364 \$408,227	13.943 5.454	\$16,262,295 \$2,226,607	16.25 6.36	\$18,950,20 \$2,594,63
	1	Undeveloped	Hectares	\$291,591	123.209	\$35,926,545	143.57	\$41,864,65
2	2 F	Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	Hectares	\$3,499,093	0.0	\$0	0.0	5
1	1	Urban (UCR)	Hectares	\$2,332,729	2.0	\$4,665,457	2.0	\$4,665,45
+	+	Dense Suburban Suburban (Ontario, City of Industry)	Hectares Hectares	\$1,166,364 \$408,227	0.0 8.0	\$0 \$3,265,820	0.0 4.0	\$1,632,91
n	ra	Undeveloped	Hectares	\$291,591	0.0	\$0	0.0	\$1,552,71
En	nvir	nmental Mitigation onmental Mitigation	3% (of Line Cost		\$72,215,582		\$47,926,66
ign	als	s and Communication						
		Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	91.660 91.660	\$66,048,905 \$54,626,914	106.810 106.810	\$76,965,78 \$63,655,91
3	3 V	Vayside Protection System	km	\$57,213	91.660	\$5,244,184	106.810	\$6,110,96
		fication Items Traction Power Supply	km	\$368,420	91.660	\$33,769,365	106.810	\$39,350,92
2	2 7	Fraction Power Distribution	km	\$686,995	91.660	\$62,969,934	106.810	\$73,377,90
		e Costs Elect size estimate	vehicles			\$0		•
Supp	po	rt Facility Costs						
		facility cost breakdown Implementation Costs	ea			\$0		5
	ogr	am Implementation Costs	25.5% of Total	Cost and Procurement		\$695,369,357		\$492,402,25
PIL	เท	gencies	250/ -6 T-14-	I Constanting Cont		\$681,734,663		\$482,747,31
Co	onti	ngencies	25% nr 1 nr 2	il Construction Cost				
Cont Co Tota	onti ol C	ngencies Construction Construction and Right of Way	25% OF TOTA	al Construction Cost		\$2,407,186,071 \$2,726,938,653		\$1,597,555,331 \$1,930,989,252

	COST ELEMENTS	UNIT	UNIT PRICE	QUANTI	TIES	
				1C San Bernardino Loop (On the Colton Line)		
Align	ment Cost			(On the Colt Quantities	Item Cost	
1	Double Track Section - Total	km		101.62		
3	Double Track Section - At-Grade Double Track Section - On Structure	km km	\$846,282 \$1,600,459	67.25 34.37	\$56,912,472 \$55,007,784	
4	Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.00	\$0	
5	Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.00	\$0 \$0	
6	Freight Double Track	km	\$846,282	0.00	\$(
7	Freight Single Track Four-track construction or reconstruction	km km	\$423,141 \$1,692,564	0.00	\$0	
	work and Related Items					
1 2	Site Preparation - Undeveloped Total Cut	Hectares m3	\$10,294 \$7.59	0.000 558175.0	\$4,233,822	
3		m3	\$7.59	0.0	\$0	
7		Hectares km	\$6,881 \$86,687	0.000 67.250	\$5,829,703	
8	Special Drainage Facilities		Earthwork Cost		\$503,176	
	tures/Tunnels/Walls Standard Structure	km	\$11,702,749	34.37	\$402,223,47	
2	High Structure	km	\$14,043,299	0	\$(
	Long Span Structure Waterway Crossing - Primary	km km	\$32,020,021 \$24,606,000	0	\$(\$(
	Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$(
5	Twin Single Track Drill & Blast (<6 Miles) Twin Single Track TBM (<6 Miles)	km km	\$63,942,150 \$47,261,589	0	\$(
7	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$(
9	Double Track Drill & Blast	km	\$71,355,733	0	\$(
	Double Track Mined (Soft Soil) Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0	\$(\$(
11	Crossovers	ea	\$80,782,844	0	\$(
12 13		km km	\$41,006,379 \$42,322,835	0	\$(\$(
14	Trench Long	km	\$33,464,567	13.2	\$441,732,28	
15 16	Mechanical & Electrical for Tunnels Retaining Walls	km km	\$1,645,723 \$3,749,214	0	SI SI	
17	Containment Walls	km	\$1,278,634	0	\$(
	Single Track Cut and Cover Subway	km	\$25,628,987	0	\$(
1	Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$(
2	Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	0	\$(
7	Street Undercrossing HSR - (Urban)	ea	\$15,278,589	57	\$870,879,553	
8	Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	0	\$0	
10	Street Bridging HSR Trench	ea		0	\$0	
21 Ruild	Minor crossing closures ing Items	ea	\$151,702	12	\$1,820,428	
	Intermediate Passenger Stations					
	El Monte (intermediate, at-grade, near exist tracks)	ea	\$26,979,000	1	\$26,979,000	
	Pomona (intermediate, aerial, near existing tracks) Ontario (intermediate, at-grade, near exist tracks)	ea ea	\$164,703,000 \$26,979,000	1	\$164,703,000 \$26,979,000	
	Colton (intermediate, at-grade, near exist tracks)	ea	\$26,979,000	0	\$0	
	UCR (intermediate, aerial, not near existing tracks) South El Monte (intermediate, at-grade, near exist tracks)	ea ea	\$86,388,000 \$26,979,000	1 0	\$86,388,000	
	City of Industry (intermediate, at-grade, near exist tracks)	ea	\$28,704,000	0	\$(
2	San Bernardino (intermediate, aerial, not near existing tracks) Terminal Passenger Stations	ea ea	\$86,388,000	1	\$86,388,000	
_	Parking Requirements					
	El Monte (4-level auto parking structure) Pomona (3-level and 4-level auto parking structures)	space space	\$14,244 \$14,244	3709 3709	\$52,830,996 \$52,830,996	
	Ontario (surface parking)	space	\$2,042	732	\$1,494,74	
	Colton (surface parking)	space	\$2,042	0 1333	\$(
	UCR (1 to 2-level and 2 to 3-level auto parking structures) South El Monte (2-level auto parking structure)	space space	\$14,244 \$14,244	1333	\$18,987,25; \$0	
	City of Industry (2-level structure and surface auto parking)	space	\$14,244	0	\$(
Rail a	San Bernardino (3-level, off-site auto parking structure) and Utility Relocation	space	\$14,244	1333	\$18,987,252	
1	Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	
	Single Track Relocation (Permanent) Single Track Removal	km km	\$1,083,588 \$54,000	165.640 0.000	\$179,485,49°	
4	Major Utility Relocations - Dense Urban	km	\$758,511	26.15	\$19,833,90	
	Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$579,719 \$406,345	18.53 10.143	\$10,741,90 \$4,121,51	
7	Major Utility Relocations - Suburban	km km	\$232,971	1.984	\$462,198	
	Major Utility Relocations - Undeveloped -of-Way	km	\$11,919	44.815	\$534,174	
	Right-of-Way Required for Each Segment					
	Dense Urban	Hectares	\$3,499,093	39.85	\$139,439,70	
\vdash	Urban Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	28.24 15.46	\$65,873,803 \$18,029,399	
	Suburban	Hectares	\$408,227	6.05	\$2,468,556	
2	Undeveloped Right-of-Way Required for Passenger Station & Parking Facilities	Hectares	\$291,591	136.60	\$39,830,41	
	Dense Urban	Hectares	\$3,499,093	0.0	\$1	
	Urban (UCR) Dense Suburban	Hectares Hectares	\$2,332,729 \$1,166,364	4.0 0.0	\$9,330,91	
	Suburban (Ontario, City of Industry)	Hectares	\$408,227	6.0	\$2,449,365	
Fnvir	Undeveloped onmental Mitigation	Hectares	\$291,591	0.0	\$0	
Env	rironmental Mitigation	3%	of Line Cost		\$85,132,32	
	Ils and Communication	1	6700 FC :	404 / 60	670 00F 2 1	
	Signaling (ATC) Communications (w/Fiber Optic Backbone)	km km	\$720,586 \$595,973	101.620 101.620	\$73,225,94° \$60,562,800	
3	Wayside Protection System	km	\$57,213	101.620	\$5,814,030	
	Traction Items Traction Power Supply	km	\$368,420	101.620	\$37,438,82	
2	Traction Power Distribution	km	\$686,995	101.620	\$69,812,40	
	Fleet size estimate	vehicles	T		SI	
Supp	ort Facility Costs		<u> </u>	1		
	Facility cost breakdown Tam Implementation Costs	ea			\$1	
Pro	gram Implementation Costs	25.5% of Total	Cost and Procurement		\$816,076,14	
	ngencies ntingencies	25% of Tot	al Construction Cost		\$800,074,651	
Total	Construction	25/6 UI TUL	Jonah delion cost		\$2,837,744,134	
	Construction and Right of Way d Total				\$3,200,298,605 \$4,816,449,401	
Jiail	u Totul				ψ¬,010,447,401	

1 Description 1987 11 12 12 12 12 12 12 1			COST ELEMENTS	UNIT	UNIT PRICE		QUANT	THES	
			nent Cost						- Downtown Item Cost
2 Security Control (1997) Security Con						118.500		118.700	
1 1 1 1 1 1 1 1 1 1									\$32,243,348 \$90,265,902
Section Proceedings Description Desc	4	ı	Double Track Section - In Tunnel or Subway	km	\$1,600,459	14.700	\$23,526,751	24.200	\$38,731,114
S. Friedrich Dade Track Comment Comm	5	5							\$0 \$0
1 State			Freight Double Track			0.000	\$0	0.000	\$0
									\$0 \$0
2 Standard Comment Comment	Eartl	hν	work and Related Items	KIII			\$0	0.000	φυ
1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept 1 Sept Sept 1 Sept Sept 1 Sept Sept 1 Sept									\$0 \$2,398,641
7. Security Forming (Ben Stees of 200)	3	3	Total Fill		\$7.59	0.0	\$0	0.0	\$0
B Description of States State States S									\$0 \$3,302,776
1 Spender Structure	8	3 5	Special Drainage Facilities			30.100		30.100	\$285,071
2 Nov Specimen				km	\$11 702 749	65.7	\$768.870.503	56.4	\$660,035,030
A Wishing Costony - Printing Section Sec	2	2	High Structure		\$14,043,299	0	\$0		\$0
No. No.									\$0 \$0
6 Test Single Trans Title (a Miss)		١	Waterway Crossing - Secondary (Irrigation/Canal Crossing)			0	\$0		\$0
1 The stage: Track Titled Argin Face (As Med)								0	\$0 \$1,143,730,458
0 Decket Track Moral (2018 50)	7	, -	Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0	0	\$0
10 Septem Charter (Disk Billandfeet)									\$0 \$0
12 Dec. 2 Count Deptite Trans Private Int	10	0 5	Seismic Chamber (Drill & Blast/Mined)		\$80,782,844	0	\$0	0	\$0
13 Terrich Office 15 15 15 15 15 15 15 1									\$0 \$0
1 10 Designing With 10 10 10 10 10 10 10 1	1:	3 -	Trench Short	km	\$42,322,835	0	\$0		\$0
1									\$0
T Containment Wals	10	6 I	Retaining Walls		\$3,749,214	0	\$0		\$39,826,489 \$0
Caracte Separations								-	\$0
2 Simet Overcrossing ISSE, (Charthant) es \$5,500,096 0 0 0 1				KM	\$25,628,987	0	\$0	0	\$0
3 Sime Controvaling ISSR - (Undeveloped) oa \$931,800 0 0 0 0 1 151,778,599 1 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599 311,178,178,599									\$0 \$0
Street Undercoming IPSR - (Obstaches)								-	\$0
D Street Religion (St. Chalmonisepot) ea \$960,055 B \$7,888.520 S \$1,988.520						· ·		1	\$15,278,589
21 More Crossing Coloures 6 \$105,700 4 \$400,800 4								-	\$17,554,123 \$7,888,520
Building Hems					4454 700			0	\$0
March ARR 61 and guide, not near existing tracks) ea \$156.779.000 0 50 1 526				ea	\$151,702	4	\$000,809	4	\$606,809
Temporalis (partial not near exciting tracks) ea \$164,703,000 1 \$164,703,000 1 \$16,800,000 1 \$13,800,0	1	Ш							
Excordio (sertin for hear estating tracks) ea \$153,806,000 0 \$0 \$1 \$30 \$11 \$30 \$2 Excordio for areal for (furner, on hear estating tracks) ea \$356,086,000 0 \$0 \$1 \$30 \$11 \$30 \$2 Excordio for areal for furner, on hear estating tracks) ea \$356,086,000 0 \$0 \$0 \$1 \$30 \$11 \$30 \$2 Excordio for areal for furner, on hear estating tracks) ea \$356,086,000 0 \$50 \$50 \$50 \$528 \$50 \$12 \$10		+						1 1	\$26,979,000 \$164,703,000
2 Terminal Passanger Stations		1	Escondido (aerial, not near existing tracks)	ea	\$163,806,000		\$163,806,000	0	\$0
3 Perking Requirements 5,228 5,228 1 1 1 1 1 1 1 1 1	2			ea	\$366,068,000	0	\$0	1	\$366,068,000
Ferrocale Gurface parking) space \$2.242 2455 \$5.013,110 2455 \$1.00 \$1.	3	B			40.040		40		\$0.704.00¢
Excondido (surface parking) Space \$2,042 1440 \$2,940,480 0		+							\$2,721,986 \$5,013,110
1 Single Track Relocation (Temporary)		1		space				0	\$0
2 Single Track Removal km \$1,083,588 11,900 \$12,094,695 11,900 \$31 \$3 Single Track Removal km \$54,000 0.000 0.000 \$0 0.000 \$1 \$1 \$1 \$1 \$1 \$1 \$1	Rail	ar		space	\$2,042	0	\$0	1440	\$2,940,480
3 Single Track Removal	1								\$0
S Major Utility Relocations - Urban	3								\$12,894,695 \$0
6 Major Utility Relocations - Dense Suburban km \$406,345 30.109 \$12,247.81 30.160 \$17. 7 Major Utility Relocations - Suburban km \$23,271 4.260 \$992,531 4.268 8 Major Utility Relocations - Suburban km \$11,919 63.616 \$758,265 63.723 1 Right-of-Way Required for Each Segment									\$8,200,236 \$5,645,532
Right-of-Way Required for Each Segment									\$12,255,430
Right-of-Way Required for Each Segment									\$994,206 \$759,544
Dense Urban				KIII	\$11,919	03.010	\$750,205	03.723	\$759,544
Urban	1	I		hosto	\$2.400.000	47.45	¢E7 FF0 F7F	47.40	\$57.650.712
Dense Suburban		†							\$57,650,712 \$34,620,726
Undeveloped hectare \$291,591 193.90 \$56,539,655 194.23 \$55	H	Ţ		hectare	\$1,166,364	45.89	\$53,520,481		\$53,610,811
2 Right-of-Way Required for Passenger Station & Parking Facilities		Ⅎ	Undeveloped						\$5,309,956 \$56,635,081
Urban	2	1	Right-of-Way Required for Passenger Station & Parking Facilities						\$0
Suburban (Temecula, Escondido) hectare \$408,227 4,0 \$1,632,910 6,0 5; Undeveloped hectare \$291,591 0.0 \$0 0.0 Environmental Mitigation	Ħ	1	Urban	hectare	\$2,332,729	0.0	\$0	0.0	\$0
Undeveloped	\vdash	+							\$0 \$2,449,365
Environmental Mitigation 3% of Line Cost \$70,832,006 \$88	Envi		Undeveloped						\$0
Signals and Communication	Er	vir	ronmental Mitigation	3%	of Line Cost		\$70,832,006		\$88,489,998
2 Communications (w/Fiber Optic Backbone)	Sign	al	s and Communication			440		440	
3 Wayside Protection System km \$57,213 118.500 \$6,779,792 118.700 \$9.	2	2 (Communications (w/Fiber Optic Backbone)						\$85,533,549 \$70,742,033
1 Traction Power Supply km \$368,420 118.500 \$43,657,754 118.700 \$44 2 Traction Power Distribution km \$686,995 118.500 \$81,408,871 118.700 \$88 1 Fleet size estimate vehicles \$0 1 Facility Costs \$0 1 Facility Costs \$0 1 Facility cost breakdown ea \$0 Program Implementation Costs \$0 Program Implementation Costs \$660,252,224 \$815 Contingencies \$25% of Total Construction Cost \$2,361,066,866 \$2,949,66 Total Construction \$2,361,066,866 \$2,949,66 1 Facility Cost \$2,361,066,866 \$2,949,66 1 Facility Cost \$2,361,066,866 \$2,949,66 2 Facility Cost \$2,361,066,866 \$2,949,66 2 Facility Cost \$2,361,066,866 \$2,949,66 2 Facility Cost \$2,361,066,866 \$2,949,66 3 Facility Cost \$2,361,066,866 \$2,949,66 3 Facility Cost \$2,361,066,866 \$2,949,66 4 Facility Cost \$2,361,066,866 \$2,949,66 5 Facility Cost \$2,949,66 5 Facility Cost \$2,949,66 6 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 8 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 8 Facility Cost \$2,949,66 7 Facility Cost \$2,949,66 8 Facility Cost \$2	3	3 1	Wayside Protection System						\$6,791,235
2 Traction Power Distribution				km	\$368.420	118.500	\$43.657.754	118.700	\$43,731,438
1 Fleet size estimate	2	2	Traction Power Distribution						\$81,546,270
1 Facility Costs 1 Facility Cost breakdown ea \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$				vehicles			\$0		\$0
Program Implementation Costs 25.5% of Total Cost and Procurement \$673,457,268 \$82 Contingencies Contingencies \$680,252,224 \$81 Total Construction \$2,361,066,866 \$2,949,6	Supp	00	rt Facility Costs						
Program Implementation Costs 25.5% of Total Cost and Procurement \$673,457,268 \$820				ea			\$0		\$0
Contingencies 25% of Total Construction Cost \$660,252,224 \$81 Total Construction \$2,361,066,866 \$2,949,6	Pr	og	ram Implementation Costs	25.5% of Total	al Cost and Procurement		\$673,457,268		\$828,350,482
Total Construction \$2,361,066,866 \$2,949,6				25% of To	ital Construction Cost		\$660.252.224		\$812,108,315
LIOTAL LODSTRUCTION AND RIGHT OF WAY \$3 248 4	Tota	1 (Construction	20,00110	20.0		\$2,361,066,866		\$2,949,666,613
							\$2,641,008,894 \$3,974,718,386		\$3,248,433,261 \$4,888,892,058

		COST ELEMENTS	UNIT	UNIT PRICE		Quan		
Aligi Trac		nent Cost			3A - Quantities	Item Cost	3B - San Diego - Quantities	Carroll Canyon Item Cost
_	_	Oouble Track Section - Total	km	N/A	15.200	rtem cost	31.100	rtem cost
	2	Double Track Section - At-Grade	km	\$846,282	0.000	\$0	15.450	\$13,075,059
	4	Double Track Section - On Structure Double Track Section - In Tunnel or Subway	km km	\$1,600,459 \$1,600,459	8.200 0.000	\$13,123,766 \$0	15.650 0.000	\$25,047,187 \$0
	5	Double Track Section - In Trench	km	\$1,600,459	7.000	\$11,203,215	0.000	\$0
	_	Single Track Sections - In Tunnel or Subway	km	\$1,000,287	0.000	\$0	0.000	\$0
- (7	Freight Double Track Freight Single Track	km km	\$846,282 \$423,141	0.000	\$0 \$0	0.000	\$C
	9	Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$0
		vork and Related Items Site Preparation - Undeveloped	Heatares	\$10,294	0.000	\$0	0.000	\$0
		Fotal Cut	Hectares m3	\$10,294	0.00	\$0	128,235.0	\$972,677
		Total Fill	m3	\$7.59	0.0	\$0	0.0	\$0
- (.andscape/Erosion Control Security Fencing (Both Sides of R/W)	Hectares km	\$6,881 \$86,687	0.000 7.000	\$0 \$606,809	0.000 15.450	\$1,339,315
8		Special Drainage Facilities		Earthwork Cost	7.000	\$30,340	15.450	\$1,337,313
		ures/Tunnels/Walls						
		Standard Structure High Structure	km km	\$11,702,749 \$14,043,299	8.2 0	\$95,962,540 \$0	15.7 0	\$183,148,018 \$0
		Long Span Structure	km	\$32,020,021	0	\$0	0	\$(
4		Naterway Crossing - Primary	km	\$24,606,000	0	\$0	0	\$0
		Naterway Crossing - Secondary (Irrigation/Canal Crossing) Twin Single Track Drill & Blast (<6 Miles)	km km	\$19,700,000 \$63,942,150	0	\$0 \$0	0	\$0 \$0
		Twin Single Track Drill & Blast (<0 Miles)	km	\$47,261,589	0	\$0	0	\$(
		Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0	\$0	0	\$0
		Double Track Drill & Blast Double Track Mined (Soft Soil)	km	\$71,355,733	0	\$0 \$0	0	\$0 \$0
		Seismic Chamber (Drill & Blast/Mined)	km ea	\$82,012,758 \$80,782,844	0	\$0 \$0	0	\$0
1	1 (Crossovers	ea	\$80,782,844	0	\$0	0	\$0
		Cut & Cover Double Track Tunnel Trench Short	km km	\$41,006,379 \$42,322,835	0 7	\$0 \$296,259,843	0	\$0 \$0
		Trench Short Trench Long	km km	\$42,322,835 \$33,464,567	0	\$296,259,843 \$0	0	\$0
1	5 1	Mechanical & Electrical for Tunnels	km	\$1,645,723	0	\$0	0	\$0
		Retaining Walls Containment Walls	km km	\$3,749,214 \$1,278,634	0	\$0 \$0	0	\$0 \$0
		Single Track Cut and Cover Subway	km	\$25,628,987	0	\$0	0	\$(
		Separations						
		Street Overcrossing HSR - (Urban) Street Overcrossing HSR - (Suburban)	ea ea	\$14,628,436 \$5,526,298	0	\$0 \$0	0	\$0 \$0
		Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	\$0
		Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	9	\$137,507,298
		Street Undercrossing HSR - (Suburban) Street Undercrossing HSR - (Undeveloped)	ea ea	\$5,851,374 \$986,065	0	\$0 \$0	0	\$0 \$0
		Street Bridging HSR Trench	ea	\$700,003	0	\$0	0	\$(
		Minor crossing closures	ea	\$151,702	0	\$0	3	\$455,107
		ng Items Intermediate Passenger Stations	1	1				
	Τ	Mira Mesa (Aerial, not near existing tracks)	ea	\$163,806,000	1	\$163,806,000	1	\$163,806,000
		University City Station (At-grade - Suburban)	ea	\$33,453,500	0	\$0	1	\$33,453,500
- 1	2 -	Terminal Passenger Stations Qualcomm (Aerial, not near existing tracks)	ea ea	\$115,172,500	1	\$115,172,500	0	\$(
	+	Downtown San Deigo (Aerial, near existing tracks)	ea	\$114,977,000	0	\$115,172,500	1	\$114,977,000
3	3 F	Parking Requirements	space					
	+	Mira Mesa (surface parking) University City Station (2 to 3-level auto and bus/taxi parking structure)	space space	\$2,042 \$14,244	561 0	\$1,145,562 \$0	561 1,375	\$1,145,562 \$19,585,500
		Qualcomm (4-level structure and surface auto parking)	space	\$14,244	3,153	\$44,911,332	0	\$17,303,300
		Downtown San Deigo (3-level auto parking structure)	space	\$14,244	0	\$0	1,051	\$14,970,444
Rail		nd Utility Relocation Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	\$0
1		Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0	37.200	\$40,309,468
3	3 5	Single Track Removal	km	\$54,000	0.000	\$0	0.000	\$0
		Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	3.385 2.509	\$2,567,649 \$1,454,782	6.926 5.134	\$5,253,546 \$2,976,561
		Major Utility Relocations - Urban Major Utility Relocations - Dense Suburban	km km	\$406,345	2.509	\$1,454,782 \$1,097,568	5.134	\$2,976,561
7	7 [Major Utility Relocations - Suburban	km	\$232,971	0.010	\$2,334	0.020	\$4,775
		Major Utility Relocations - Undeveloped of-Way	km	\$11,919	6.594	\$78,601	13.492	\$160,822
		Right-of-Way Required for Each Segment						
1	I	Dense Urban	hectare	\$3,499,093	5.16	\$18,051,530	10.56	\$36,934,381
+	+	Urban Dense Suburban	hectare hectare	\$2,332,729 \$1,166,364	3.82 4.12	\$8,921,325 \$4,801,259	7.82 8.42	\$18,253,500 \$9,823,628
+	+	Suburban	hectare	\$1,166,364 \$408,227	0.03	\$4,801,259 \$12,464	0.06	\$9,823,628 \$25,50°
	1	Undeveloped	hectare	\$291,591	20.10	\$5,860,846	41.12	\$11,991,599
- 2	2 I	Right-of-Way Required for Passenger Station & Parking Facilities Dense Urban	hectare	\$3,499,093	0.0	\$0	0.0	\$(
1	1	Urban (Qualcomm)	hectare	\$2,332,729	2.0	\$4,665,457	2.0	\$4,665,457
$-\Gamma$	Ţ	Dense Suburban Suburban (Mira Mesa)	hectare	\$1,166,364	0.0	\$0 \$016.455	0.0 4.0	\$1 \$1,622,010
	_	Undeveloped	hectare hectare	\$408,227 \$291,591	2.0 0.0	\$816,455 \$0	4.0 0.0	\$1,632,910 \$0
		nmental Mitigation						
		onmental Mitigation s and Communications	3%	of Line Cost		\$23,530,395		\$25,082,905
		Signaling (ATC)	km	\$720,586	15.200	\$10,952,906	31.100	\$22,410,222
2	2 (Communications (w/Fiber Optic Backbone)	km	\$595,973	15.200	\$9,058,794	31.100	\$18,534,770
		Wayside Protection System fication I tems	km	\$57,213	15.200	\$869,644	31.100	\$1,779,338
1	1	Fraction Power Supply	km	\$368,420	15.200	\$5,599,982	31.100	\$11,457,858
2	2	Traction Power Distribution	km	\$686,995	15.200	\$10,442,319	31.100	\$21,365,535
		e Costs Fleet size estimate	vehicles			\$0		\$(
Sup	ро	rt Facility Costs	vernetes	<u> </u>		\$0		2
1	1 F	acility cost breakdown	ea			\$0		\$
		Im Implementation Costs ram Implementation Costs	25 5% of Total	Cost and Procurement		\$217,006,585		\$240,849,21
		gencies	20.076 UI 10(8)	Cost and Producement		\$Z17,0U0,385		\$240,849,21
Co	ont	ingencies	25% of Total	al Construction Cost		\$212,751,554		\$236,126,68
		Construction Construction and Right of Way				\$784,346,487 \$851,006,217		\$836,096,842 \$944,506,724
		Total				\$1,280,764,357		\$1,421,482,620
						, , . , . , . , . , . , . , .		, ,

ignment	COST ELEMENTS Cost	UNIT	UNIT PRICE	Quanti 3C - San Diego -	Miramar Road
ack			Terre T	Quantities	Item Cost
	: Track Section - Total ble Track Section - At-Grade	km km	N/A \$846,282	30.700 7.250	\$6,135,5
3 Doub	ble Track Section - On Structure	km	\$1,600,459	23.450	\$37,530,7
	ble Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	
	ble Track Section - In Trench le Track Sections - In Tunnel or Subway	km km	\$1,600,459 \$1,000,287	0.000	
6 Freig	ht Double Track	km	\$846,282	0.000	
	pht Single Track -track construction or reconstruction	km km	\$423,141 \$1,692,564	0.000	
	and Related Items	KIII	\$1,092,304	0.000	
1 Site Pre	eparation - Undeveloped	Hectares	\$10,294	0.000	
2 Total C 3 Total F		m3	\$7.59 \$7.59	60,175.0 0.0	\$456,4
	iii ape/Erosion Control	m3 Hectares	\$6,881	0.000	
7 Securit	y Fencing (Both Sides of R/W)	km	\$86,687	7.250	\$628,4
	Drainage Facilities /Tunnels/Walls	5% of	Earthwork Cost		\$54,
	rd Structure	km	\$11,702,749	23.5	\$274,429,
2 High St		km	\$14,043,299	0	
	pan Structure	km	\$32,020,021	0	
	vay Crossing - Primary vay Crossing - Secondary (Irrigation/Canal Crossing)	km km	\$24,606,000 \$19,700,000	0	
	ingle Track Drill & Blast (<6 Miles)	km	\$63,942,150	0	
	ingle Track TBM (<6 Miles)	km	\$47,261,589	0	
	ingle Track TBM w/3rd Tube (>6 Miles) Track Drill & Blast	km km	\$67,185,592 \$71,355,733	0	
9 Double	Track Mined (Soft Soil)	km	\$82,012,758	0	
10 Seismid	Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0	-
11 Crosso	vers Cover Double Track Tunnel	ea km	\$80,782,844 \$41,006,379	0	
13 Trench		km km	\$41,006,379	0	
14 Trench	Long	km	\$33,464,567	0	
	nical & Electrical for Tunnels ng Walls	km km	\$1,645,723 \$3,749,214	0	
	ng walls	km	\$3,749,214	0	
18 Single	Track Cut and Cover Subway	km	\$25,628,987	0	
	arations Overcrossing HSR - (Urban)	ea	\$14,628,436	0	
	Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	
	Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	
	Undercrossing HSR - (Urban) Undercrossing HSR - (Suburban)	ea	\$15,278,589 \$5,851,374	0	
	Undercrossing HSR - (Undeveloped)	ea ea	\$986,065	0	
	Bridging HSR Trench	ea		0	
21 Minor o	crossing closures	ea	\$151,702	0	
	ediate Passenger Stations	1			
Mira	Mesa (Aerial, not near existing tracks)	ea	\$163,806,000	1	\$163,806,
	ersity City Station (At-grade - Suburban)	ea	\$33,453,500	1	\$33,453,
	al Passenger Stations comm (Aerial, not near existing tracks)	ea	\$115,172,500	0	
Dow	ntown San Deigo (Aerial, near existing tracks)	ea	\$114,977,000	1	\$114,977,
	g Requirements	space	£2.042	F/1	61.145
	Mesa (surface parking) ersity City Station (2 to 3-level auto and bus/taxi parking structure)	space	\$2,042 \$14,244	561 1,375	\$1,145, \$19,585,
	comm (4-level structure and surface auto parking)	space	\$14,244	0	
	ntown San Deigo (3-level auto parking structure)	space	\$14,244	1,051	\$14,970
	Track Relocation (Temporary)	km	\$1,083,588	0.000	
2 Single	Track Relocation (Permanent)	km	\$1,083,588	35.000	\$37,925
	Track Removal	km	\$54,000	0.000	AF 40F
	Utility Relocations - Dense Urban Utility Relocations - Urban	km km	\$758,511 \$579,719	6.837 5.068	\$5,185 \$2,938
6 Major l	Utility Relocations - Dense Suburban	km	\$406,345	5.455	\$2,216
7 Major l	Utility Relocations - Suburban	km	\$232,971	0.020	\$4
8 Major l	Utility Relocations - Undeveloped	km	\$11,919	13.319	\$158
1 Right-c	of-Way Required for Each Segment				
Dens	se Urban	hectare	\$3,499,093	10.42	\$36,459
Urba	an se Suburban	hectare	\$2,332,729 \$1,166,364	7.72 8.31	\$18,018 \$9,697
	urban	hectare hectare	\$1,166,364	0.06	\$9,697
Unde	eveloped	hectare	\$291,591	40.60	\$11,837
	of-Way Required for Passenger Station & Parking Facilities se Urban	hectare	\$3,499,093	0.0	
Urba	n (Qualcomm)	nectare hectare	\$2,332,729	2.0	\$4,665
	se Suburban	hectare	\$1,166,364 \$408,227	0.0 4.0	\$1,632
	urban (Mira Mesa) eveloped	hectare hectare	\$408,227 \$291,591	0.0	\$1,032
/ironme	ntal Mitigation				
	ntal Mitigation d Communications	3%	of Line Cost		\$23,705
1 Signalii		km	\$720,586	30.700	\$22,121
2 Commu	unications (w/Fiber Optic Backbone)	km	\$595,973	30.700	\$18,296
	le Protection System ion Items	km	\$57,213	30.700	\$1,756
	n Power Supply	km	\$368,420	30.700	\$11,310
2 Tractio	n Power Distribution	km	\$686,995	30.700	\$21,090
nicle Cos					
	ize estimate	vehicles			
	cost breakdown	ea			
gram Ir	mplementation Costs				
Program In	nplementation Costs	25.5% of Tota	I Cost and Procurement		\$228,536
Contingenc		25% of To	tal Construction Cost		\$224,055
al Cons	truction	20,00110	20 200.01 3031		\$790,179,0
	truction and Right of Way				\$896,220,7

Capital Cost Estimate CAHSRA Program EIR/EIS Los Angeles - Orange - San Diego Los Angeles to San Diego (LOSSAN)

COST ELEMENTS	UNIT	UNIT PRICE	-	QUANT		
Alignment Cost			LAUS-LA		LAUS-UP Sant	
Track 1 Double Track Section - Total	km		Quantities 25.350	Item Cost	Quantities 44.150	Item Cost
Double Track Section - At-Grade	km	\$846,282	1.225	\$1,036,696	4.925	\$4,167,93
3 Double Track Section - On Structure	km	\$1,600,459	9.700	\$15,524,455	21.500	\$34,409,87
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	2.850	\$4,561,309	4.050	\$6,481,86
5 Double Track Section - In Trench	km	\$1,600,459	11.575	\$18,525,316	13.675	\$21,886,28
Single Track Sections - In Tunnel or Subway 6 Freight Double Track	km km	\$1,000,287 \$846,282	0.000	\$0 \$0	0.000	
7 Freight Single Track	km	\$423,141	0.000	\$0	0.000	3
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0	0.000	\$
Earthwork and Related Items						
1 Site Preparation - Undeveloped	Hectares	\$10,294	0.000	\$0	0.000	\$
2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	10167.5 0.0	\$77,122 \$0	40877.5 0.0	\$310,06
6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0	0.000	
7 Security Fencing (Both Sides of R/W)	km	\$86,687	12.800	\$1,109,594	18.600	\$1,612,37
8 Special Drainage Facilities		Earthwork Cost		\$59,336		\$96,12
Structures/Tunnels/Walls				,		
1 Standard Structure	km	\$11,702,749	9.700	\$113,516,663	21.500	\$251,609,09
2 High Structure 3 Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000	\$0 \$0	0.000	
4 Waterway Crossing - Primary	km	\$24,606,000	0.000	\$0	0.000	9
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0	0	
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0	0.000	5
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	\$0	4.050	\$191,409,43
7 Twin Single Track TBM w/3rd Tube (>6 Miles)	km	\$67,185,592	0.000	\$0	0.000	
8 Double Track Drill & Blast	km	\$71,355,733 \$82,012,758	0.000	\$0	0.000	
9 Double Track Mined (Soft Soil) 10 Soicmic Chamber (Prill & Plast/Mined)	km	\$82,012,758 \$80,782,844	0.000	\$0 \$0	0.000	
10 Seismic Chamber (Drill & Blast/Mined) 11 Crossovers	ea ea	\$80,782,844	0.000	\$0 \$0	0.000	
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	2.850	\$116,868,180	0.000	
13 Trench Short	km	\$42,322,835	0.000	\$110,000,100	13.675	\$578,764,7
14 Trench Long	km	\$33,464,567	11.575	\$387,352,362	0.000	4=1=(1=1)
15 Mechanical & Electrical for Tunnels	km	\$1,645,723	2.850	\$4,690,310	4.050	\$6,665,1
16 Retaining Walls	km	\$3,749,214	0.000	\$0	0.000	
17 Containment Walls	km	\$1,278,634	0.000	\$0	0.000	
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0	0.000	
Grade Separations 1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0	0	
2 Street Overcrossing HSR - (Suburban)	ea	\$5,526,298	0	\$0	0	
3 Street Overcrossing HSR - (Undeveloped)	ea	\$931,886	0	\$0	0	
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	0	\$0	0	
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0	0	
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0	0	
10 Street Bridging HSR Trench	ea	6151 700	0	\$0	0	
21 Minor crossing closures Building Items	ea	\$151,702	0	\$0	0	:
1 Intermediate Passenger Stations						
Norwalk LAUS-UP Santa Ana	ea	\$28,704,000	0	\$0	1	\$28,704,00
Norwalk LOSSAN Shared Use	ea	\$10,000,000	0	\$0	0	\$20,701,00
Fullerton LOSSAN Shared Use	ea	\$10,000,000	0	\$0	0	
Anaheim LOSSAN Shared Use	ea	\$10,000,000	0	\$0	0	9
Santa Ana LOSSAN Shared Use	ea	\$10,000,000	0	\$0	0	
2 Terminal Passenger Stations		4005 000 500		4005 000 500		
LAX LAUS-LAX Anaheim LAUS-UP Santa Ana	ea ea	\$335,903,500 \$335,903,500	1 0	\$335,903,500 \$0	0	\$335,903,50
Irvine LOSSAN Shared Use	ea	\$10,000,000	0	\$0	0	\$333,703,30
3 Parking - Structure		4.0/200/200	-		-	
Norwalk LAUS-UP Santa Ana	space	\$14,244	0	\$0	1140	\$16,238,16
Anaheim LAUS-UP Santa Ana	space	\$14,244	0	\$0	2300	\$32,761,2
Anaheim LOSSAN Shared Use	space	\$14,244	0	\$0	0	
Irvine LOSSAN Shared Use	space	\$14,244	0	\$0	0	
4 Parking - At Grade	space	\$2,042	0	\$0	0	<u> </u>
1 Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0	0.000	
2 Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0	37.050	\$40,146,9
3 Single Track Removal	km	\$54,000	23.100	\$1,247,400	0.000	
4 Major Utility Relocations - Dense Urban	km	\$758,511	0.000	\$0	0.000	;
5 Major Utility Relocations - Urban	km	\$579,719	25.350	\$14,695,889	40.100	\$23,246,7
6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0	0.000	
7 Major Utility Relocations - Suburban	km	\$232,971	0.000	\$0	0.000	
8 Major Utility Relocations - Undeveloped	km	\$11,919	0.000	\$0	0.000	
1 Right-of-Way Required for Each Segment		T T	1	1	1	
Dense Urban	Hectares	\$3,499,093	38.025	\$133,053,016	126.474	\$442,544,3
Urban	Hectares	\$2,332,729	0.000	\$105,055,010	0.000	¥442,544,5
Dense Suburban	Hectares	\$1,166,364	0.000	\$0	0.000	
Suburban	Hectares	\$408,227	0.000	\$0	0.000	
Undeveloped	Hectares	\$291,591	0.000	\$0	0.000	
2 Right-of-Way Required for Passenger Station & Parking Facilities						
Dense Urban	Hectares	\$3,499,093	10.500	\$36,740,478	33.400	\$116,869,7
Urban	Hectares	\$2,332,729	0.000	\$0	0.000	
Dansa Suhurhan	Hectares Hectares	\$1,166,364 \$408,227	0.000	\$0 \$0	0.000	
Dense Suburban Suburban		\$408,227	0.000	\$0 \$0	0.000	
Dense Suburban Suburban Undeveloped	Hectares		5.500	ŞÜ	0.000	
Suburban Undeveloped		3271,371				
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation	Hectares	of Line Cost		\$32,302,441		\$50,449,8
Suburban Undeveloped novironmental Mitigation Environmental Mitigation ignals and Communication	Hectares 3%	of Line Cost				
Suburban Undeveloped Environmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC)	Hectares 3%	of Line Cost \$720,586	25.350	\$18,266,853	44.150	\$31,813,8
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation Ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone)	Hectares 3% km km	of Line Cost \$720,586 \$595,973	25.350	\$18,266,853 \$15,107,924	44.150	\$31,813,8 \$26,312,2
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System	Hectares 3%	of Line Cost \$720,586		\$18,266,853		\$31,813,8 \$26,312,2
Undeveloped Nvironmental Mitigation Environmental Mitigation Ignal's and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems	Hectares 3% km km km	\$720,586 \$595,973 \$57,213	25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,9
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation Ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Inctrification I tems 1 Traction Power Supply	Hectares 3% km km km km	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,9 \$16,265,7
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (Wriber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Stribution	Hectares 3% km km km	\$720,586 \$595,973 \$57,213	25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,4 \$16,265,7
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Distribution	Hectares 3% km km km km	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444	44.150 44.150	\$31,813, \$26,312, \$2,525, \$16,265,
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation Ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System Incertification I tems 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Fleet size estimate	Hectares 3% km km km km	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,4 \$16,265,7
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Supply 2 Traction Power Supply 5 Treation Power Supply 6 Tredion Power Supply 7 Traction Power Supply 8 Tredion Power Supply 9 Traction Power Supply 1 Facility Costs 1 Fleet size estimate Upport Facility Costs 1 Facility cost breakdown	Hectares 3% km km km km	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,6 \$16,265,7 \$30,330,8
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation Environmental Mitigation [Signals and Communication] 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System [Iectrification I tems] 1 Traction Power Supply 2 Traction Power Distribution [Cehicle Costs] 1 Fleet size estimate [Support Facility Costs] 1 Facility cost breakdown [Program Implementation Costs]	Hectares 3% km km km km vehicles	of Line Cost \$720,586 \$595,973 \$597,213 \$57,213 \$368,420 \$686,995	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,5 \$16,265,7 \$30,330,8
Suburban Undeveloped Invironmental Mitigation Environmental Mitigation Environmental Mitigation I Signaling (ATC) 2 Communications (W/Fiber Optic Backbone) 3 Wayside Protection System I Traction Power Supply 2 Traction Power Supply 2 Traction Power Distribution //ehicle Costs I Fleet size estimate Support Facility cost State I Facility cost breakdown Program Implementation Costs	Hectares 3% km km km km vehicles	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,9 \$16,265,7 \$30,330,8
Suburban Undeveloped Environmental Mitigation Environmental Mitigation Environmental Mitigation [Invironmental Mitigation Invironmental Mitigation Invitor Mitigation Inv	Hectares 3% km km km km km contact with the series of th	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 Cost and Procurement	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316 \$0 \$0 \$326,105,210	44.150 44.150	\$50,449,8 \$31,813,8 \$26,312,2 \$2,525,9 \$16,265,7 \$30,330,8
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (w/Fiber Optic Backbone) 3 Wayside Protection System lectrification I tems 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Facility cost breakdown roggram Implementation Costs Program Implementation Costs Ontlingencies Contingencies	Hectares 3% km km km km km contact with the series of th	of Line Cost \$720,586 \$595,973 \$597,213 \$57,213 \$368,420 \$686,995	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316 \$0 \$0 \$326,105,210 \$319,710,990	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,5 \$16,265,7 \$30,330,8 \$584,339,1
Suburban Undeveloped nvironmental Mitigation Environmental Mitigation ignals and Communication 1 Signaling (ATC) 2 Communications (wFiber Optic Backbone) 3 Wayside Protection System lectrification Items 1 Traction Power Supply 2 Traction Power Distribution ehicle Costs 1 Fielet size estimate upport Facility costs 1 Facility cost breakdown roggram Implementation Costs Program Implementation Costs ontingencies	Hectares 3% km km km km km contact with the series of th	of Line Cost \$720,586 \$595,973 \$57,213 \$368,420 \$686,995 Cost and Procurement	25.350 25.350 25.350	\$18,266,853 \$15,107,924 \$1,450,361 \$9,339,444 \$17,415,316 \$0 \$0 \$326,105,210	44.150 44.150	\$31,813,8 \$26,312,2 \$2,525,9 \$16,265,7 \$30,330,8

Capital Cost Estimate CAHSRA Program EIR/EIS Los Angeles - Orange - San Diego Los Angeles to San Diego (LOSSAN)

COST ELEMENTS	UNIT	UNIT PRICE		QUANT			
Alignment Cost			LAUS-IRV LC			LAUS-Anaheim LOSSAN (elec)	
Track 1 Double Track Section - Total	km		Quantities 69.256	Item Cost	Quantities 48.4	\$1,007,158,19	
Double Track Section - At-Grade	km	\$846,282	62.341	\$52,758,073	10.1	\$1,007,130,1	
3 Double Track Section - On Structure	km	\$1,600,459	6.915	\$11,067,176			
4 Double Track Section - In Tunnel or Subway	km	\$1,600,459	0.000	\$0			
5 Double Track Section - In Trench Single Track Sections - In Tunnel or Subway	km	\$1,600,459 \$1,000,287	0.000	\$0 \$0			
6 Freight Double Track	km km	\$1,000,287	15.423	\$13,052,209			
7 Freight Single Track	km	\$423,141	8.500	\$3,596,699			
9 Four-track construction or reconstruction	km	\$1,692,564	0.000	\$0			
Earthwork and Related Items							
Site Preparation - Undeveloped	Hectares	\$10,294	25.201	\$259,421			
2 Total Cut 3 Total Fill	m3 m3	\$7.59 \$7.59	0.0	\$0 \$0			
6 Landscape/Erosion Control	Hectares	\$6,881	0.000	\$0			
7 Security Fencing (Both Sides of R/W)	km	\$86,687	62.341	\$5,404,156			
8 Special Drainage Facilities		Earthwork Cost		\$283,179			
Structures/Tunnels/Walls							
1 Standard Structure	km	\$11,702,749	6.712	\$78,548,850			
2 High Structure 3 Long Span Structure	km km	\$14,043,299 \$32,020,021	0.000	\$0 \$0			
4 Waterway Crossing - Primary	km	\$24,606,000	0.203	\$4,995,018			
Waterway Crossing - Secondary (Irrigation/Canal Crossing)	km	\$19,700,000	0	\$0			
5 Twin Single Track Drill & Blast (<6 Miles)	km	\$63,942,150	0.000	\$0			
6 Twin Single Track TBM (<6 Miles)	km	\$47,261,589	0.000	\$0			
7 Twin Single Track TBM w/3rd Tube (>6 Miles) 8 Double Track Drill & Blast	km	\$67,185,592 \$71,355,733	0.000	\$0 \$0			
Bouble Track Drill & Blast Double Track Mined (Soft Soil)	km km	\$82,012,758	0.000	\$0			
10 Seismic Chamber (Drill & Blast/Mined)	ea	\$80,782,844	0.000	\$0			
11 Crossovers	ea	\$80,782,844	0.000	\$0			
12 Cut & Cover Double Track Tunnel	km	\$41,006,379	0.000	\$0		-	
13 Trench Short	km	\$42,322,835	0.000	\$0			
14 Trench Long	km	\$33,464,567	0.000	\$0			
15 Mechanical & Electrical for Tunnels 16 Retaining Walls	km km	\$1,645,723 \$3,749,214	0.000	\$0 \$0			
17 Containment Walls	km	\$1,278,634	0.000	\$0			
18 Single Track Cut and Cover Subway	km	\$25,628,987	0.000	\$0			
Grade Separations							
1 Street Overcrossing HSR - (Urban)	ea	\$14,628,436	0	\$0			
Street Overcrossing HSR - (Suburban) Street Overcrossing HSR - (Undeveloped)	ea ea	\$5,526,298 \$931,886	0	\$0 \$0			
7 Street Undercrossing HSR - (Urban)	ea	\$15,278,589	41	\$626,422,135			
8 Street Undercrossing HSR - (Suburban)	ea	\$5,851,374	0	\$0			
9 Street Undercrossing HSR - (Undeveloped)	ea	\$986,065	0	\$0			
10 Street Bridging HSR Trench	ea		0	\$0			
21 Minor crossing closures	ea	\$151,702	2	\$303,405			
Building Items 1 Intermediate Passenger Stations		T T					
Norwalk LAUS-UP Santa Ana	ea	\$28,704,000	0	\$0			
Norwalk LOSSAN Shared Use	ea	\$10,000,000	1	\$10,000,000			
Fullerton LOSSAN Shared Use	ea	\$10,000,000	1	\$10,000,000			
Anaheim LOSSAN Shared Use	ea	\$10,000,000	1	\$10,000,000			
Santa Ana LOSSAN Shared Use	ea	\$10,000,000	1	\$10,000,000			
2 Terminal Passenger Stations LAX LAUS-LAX	ea	\$335,903,500	0	\$0			
Anaheim LAUS-UP Santa Ana	ea	\$335,903,500	0	\$0			
Irvine LOSSAN Shared Use	ea	\$10,000,000	1	\$10,000,000			
3 Parking - Structure							
Norwalk LAUS-UP Santa Ana	space	\$14,244	1140	\$16,238,160			
Anaheim LAUS-UP Santa Ana Anaheim LOSSAN Shared Use	space	\$14,244 \$14,244	0 1900	\$0 \$27,063,600			
Irvine LOSSAN Shared Use	space space	\$14,244	850	\$12,107,400			
4 Parking - At Grade	space	\$2,042	0	\$0			
tail and Utility Relocation							
Single Track Relocation (Temporary)	km	\$1,083,588	0.000	\$0			
2 Single Track Relocation (Permanent)	km	\$1,083,588	0.000	\$0			
3 Single Track Removal 4 Major Utility Relocations - Dense Urban	km km	\$54,000 \$758,511	0.000	\$0 \$0			
Major Utility Relocations - Dense Urban Major Utility Relocations - Urban	km km	\$758,511 \$579,719	69.256	\$40,149,054			
6 Major Utility Relocations - Dense Suburban	km	\$406,345	0.000	\$0			
7 Major Utility Relocations - Suburban	km	\$232,971	0.000	\$0			
8 Major Utility Relocations - Undeveloped	km	\$11,919	0.000	\$0			
Right-of-Way 1 Right-of-Way Required for Each Segment			1	ı	ı		
1 Right-of-way Required for Each Segment Dense Urban	Hectares	\$3,499,093	70.490	\$246,651,074			
Urban	Hectares	\$2,332,729	0.000	\$240,051,074			
Dense Suburban	Hectares	\$1,166,364	0.000	\$0			
Suburban	Hectares	\$408,227	0.000	\$0			
Undeveloped	Hectares	\$291,591	0.000	\$0			
2 Right-of-Way Required for Passenger Station & Parking Facilities	Host	\$2,400,000	40.000	¢140.7/0.000			
Dense Urban Urban	Hectares Hectares	\$3,499,093 \$2,332,729	40.800 0.000	\$142,762,999 \$0			
Dense Suburban	Hectares	\$1,166,364	0.000	\$0			
Suburban	Hectares	\$408,227	0.000	\$0			
Undeveloped	Hectares	\$291,591	0.000	\$0			
nvironmental Mitigation		of Line Co-t	1	#99.044.5	1	** 50=	
Environmental Mitigation ignals and Communication	3%	of Line Cost		\$33,314,530		\$3,527,1	
1 Signaling (ATC)	km	\$720,586	69.256	\$49,904,898	48.4	\$34,876,358	
2 Communications (w/Fiber Optic Backbone)	km	\$595,973	69.256	\$41,274,728	48.4	\$28,845,108	
3 Wayside Protection System	km	\$57,213	69.256	\$3,962,374	48.4	\$2,769,130	
lectrification Items							
1 Traction Power Supply	km	\$368,420	69.256	\$25,515,286	48.4	\$17,831,521	
2 Traction Power Distribution	km	\$686,995	69.256	\$47,578,505	48.4	\$33,250,543	
1 Fleet size estimate	vehicles			\$0			
upport Facility Costs	VCHICIES			30			
1 Facility cost breakdown	ea			\$0			
rogram Implementation Costs							
Program Implementation Costs	25.5% of Total	Cost and Procurement		\$390,969,297		\$30,880,4	
Contingencies	250/ 57	ol Construction C	1	#202.000.00-	ı	200.07	
Contingencies Total Construction	25% of Tota	al Construction Cost		\$383,303,232 \$1,110,484,324		\$30,274,9 \$117,572,6 6	
otal Construction and Right of Way				\$1,533,212,928		\$121,099,84	
rand Total				\$2,307,485,456		\$1,189,413,4	